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HOUSE OF COMMONS

Second Session—Twenty-sixth Parliament

1964-1965

SPECIAL COMMITTEE

ON

DEFENCE

Chairman: Mr. DAVID G. HAHN

MINUTES OF PROCEEDINGS AND EVIDENCE

No. 26-27

2 REPORTS & SPECIAL STUDIES

THURSDAY, MARCH 25, 1965

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APR 13 1965
UNIVERSITY OF TORONTO
Respecting the
NAVAL SHIPBUILDING PROGRAMME

WITNESSES:

The Honourable Paul T. Hellyer, Minister of National Defence; Commodore John A. Charles, R.C.N., Director General of Force Development; and Commodore S. Mathwin Davis, R.C.N., Director General Ships.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1965

SPECIAL COMMITTEE
ON

DEFENCE

Chairman: Mr. David G. Hahn

Vice Chairman: Hon. Marcel Lambert

and Messrs.

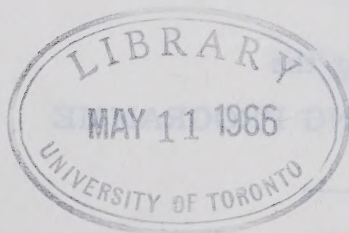
Asselin (Notre-Dame-
de-Grâce),
Béchar, d,
Brewin,
Deachman,
Fane,
Groos,
Harkness,

Langlois,
Laniel,
Lessard (Lac-Saint-
Jean),
Lloyd,
MacInnis,
MacLean,
MacRae,

Martineau,
Matheson,
McMillan,
McNulty,
Pilon,
Smith,
Temple,
Winch—24.

(Quorum 13)

E. W. Innes,
Clerk of the Committee.



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MINUTES OF PROCEEDINGS

THURSDAY, March 25, 1965
(40)

The Special Committee on Defence met at 9:45 a.m. this day. The Chairman, Mr. David C. Hahn, presided.

Members present: Messrs. Béchard, Deachman, Fane, Groos, Hahn, Harkness, Lambert, Laniel, Lloyd, MacLean, Matheson, McMillan, Pilon, Smith, Temple and Winch (16).

In attendance: Honourable Paul T. Hellyer, Minister of National Defence; Honourable Léo Cadieux, Associate Minister of National Defence; Commodore John A. Charles, R.C.N., Director General of Force Development; and Commodore S. Mathwin Davis, R.C.N., Director General—Ships.

The Chairman presented the Thirteenth Report of the Steering Subcommittee as follows:

Your Subcommittee recommends:

1. That the Committee meet on Thursday, March 25th to receive a briefing on the Naval Shipbuilding Programme.
2. That the Committee meet on Tuesday, March 30th to receive a briefing on the integrated Armed Forces Recruiting Programme.
3. That the Committee meet on Thursday, April 1st to receive a briefing on the Allied Command Europe mobile force.
4. That future meetings of the Committee be held to receive briefings on:
 - (a) the Construction Engineering Programme for the Armed Forces
 - (b) the integration of Armed Forces Communications
 - (c) the Special Service Force
 - (d) the Land Forces Equipment Programme
 - (e) the Airforce Procurement Programme
 - (f) Developments in the field of Air-transportability of modern forces
 - (g) a Report by Minister of National Defence on the progress of integration of the Armed Forces.
5. That the Committee make arrangements, in the future, to visit the Defence Research Board establishment at Shirley's Bay.

On motion of Mr. Deachman, seconded by Mr. Béchard,

Resolved,—That the Thirteenth Report of the Steering Subcommittee be adopted.

The Honourable Paul T. Hellyer, the Minister of National Defence, introduced to the Committee the Associate Minister of National Defence, the Honourable Léo Cadieux.

Commodore Charles was called and he read a prepared statement respecting the Naval Shipbuilding Programme.

Commodore Davis explained the technical, production, and financial considerations involved in this programme.

The witnesses were questioned on their statements and on related matters.

At 12:10 p.m. the Committee adjourned until Tuesday, March 30, 1965.

E. W. Innes,

Clerk of the Committee.

THURSDAY, March 25, 1965.

EVIDENCE

The CHAIRMAN: Gentlemen, we have a quorum. We have lined up a programme which will continue on into the next session.

At this time I will present to you the steering committee's report, which met yesterday, outlining our future programme. The report is as follows:

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 - (g) a Report by Minister of National Defence on the progress of integration of the Armed Forces
5. That the Committee make arrangements, in the future, to visit the Defence Research Board establishment at Shirleys Bay.

I would like to give a brief word of explanation at this time. A number of these future briefings are not yet prepared but they will be available for the next session. I think it is important to put these on the record at this time so that we will have our programme outlined in advance of the formation of a new committee.

I would like a motion for the acceptance of the report.

Mr. DEACHMAN: I so move.

Mr. BÉCHARD: I second the motion.

Mr. WINCH: Mr. Chairman, will there be a recommendation made for the formulation of this committee next session so that this work can be continued?

The CHAIRMAN: Yes. Before the end of this session we will have to submit a Report to the House. The gist of the report will be that we continue with our work. We will be asking that the House consider constituting this committee again, with the same membership if possible. And, we will be requesting that the Minutes and Proceedings of this session be referred to the new committee to be established. We will submit that report for your consideration at our last meeting this session.

Is the motion moved by Mr. Deachman and seconded by Mr. Béchard agreed to?

Motion agreed to.

The CHAIRMAN: The briefing this morning is on the Naval Shipbuilding Programme. Before we proceed to the statement by officers of the Navy the Minister of National Defence, Mr. Hellyer, would like to introduce the new Associate Minister.

Hon. PAUL HELLYER (*Minister of National Defence*): Mr. Chairman and gentlemen, it is indeed a pleasure to introduce to you the Associate Minister of National Defence, Mr. Cadieux.

You all know Mr. Cadieux and you know that he is a very able person. Also, I am sure you all know that he has a wonderful sense of humor, which should ably assist him in this most difficult assignment.

Mr. WINCH: Are you implying, Mr. Minister, that he needs a sense of humour when appearing before this committee?

Mr. HELLYER: I am not too surprised that you took that inference from what I said. But, it is indeed a pleasure to have him in the Department. I know he will make a real contribution not only to the department but to the deliberations of this committee.

The briefing this morning is on the naval shipbuilding programme. It will be conducted by Commodore Charles.

The CHAIRMAN: I believe all members have received copies of the brief that has been presented. If not, we will see that you get one.

Mr. BÉCHARD: Mr. Chairman, at this time I want to congratulate the Minister of National Defence and his Associate Minister, as well as all members of the department, for their respect of the two official languages, in making available this morning all documents in both French and English.

Mr. HELLYER: Merci, monsieur.

The CHAIRMAN: Our first briefer this morning will be Commodore John A. Charles, R.C.N., Director-General of Force Development.

Commodore JOHN A. CHARLES, R.C.N. (*Director-General of Force Development*): Mr. Chairman and gentlemen.

The purpose of our presentation today is to describe the programme for the construction and conversion of ships for our maritime force.

To assist in this presentation we will use a series of charts which we will place on the easel. A copy of all these charts is included in the brochures available to you.

It is my particular task to outline the major programmes to you and to describe why we are building particular types of ships and in the numbers called for and why we are converting other ships. I intend staying within what is generally called the "military staff requirements". Commodore Davis who will follow me, will speak on the technical aspects of the programme.

It is suggested, Mr. Chairman, if convenient, that questions be raised at the end of the briefing.

Force Structure

The white paper on defence indicated in part that:

- (a) Canadian maritime forces would continue in the anti-submarine role and a modern and well equipped fleet would be maintained; and
- (b) that a modest additional sea lift for peace-keeping operations would be acquired.

Present ASW Capability

To establish the nature of a future ship building programme which will enable us to maintain an effective anti-submarine force we

must first examine our present inventory of ASW vessels and the period of time that they will be in operational service. We have available at this time 1 aircraft carrier and 38 ASW vessels of which 18 were laid down before the end of world war II. We also have 3 "O" class submarines now under construction. Taking into account a normal ship life of twenty to twenty-five years, it is clear that of our present force only the carrier, twenty destroyer escorts and 3 submarines will be in operational service in the early 1970's. During the life span of these ships there will be continuous technological advances in the weapons of war of all nations. To maintain our present effectiveness against submarines of the future and provide defence against surface and air attacks which can be expected during this time period our ships will have to be kept up to date with the most effective fighting equipment that is available.

Requirement

Therefore there is a requirement for a ship construction and conversion programme which will:

- Provide at an early date new ASW ships as a replacement for those reaching the end of their life during the next 5 years.
- Provide existing ships with improved ASW capability.
- Provide the fleet with defence against future air and surface attack.

The Programme

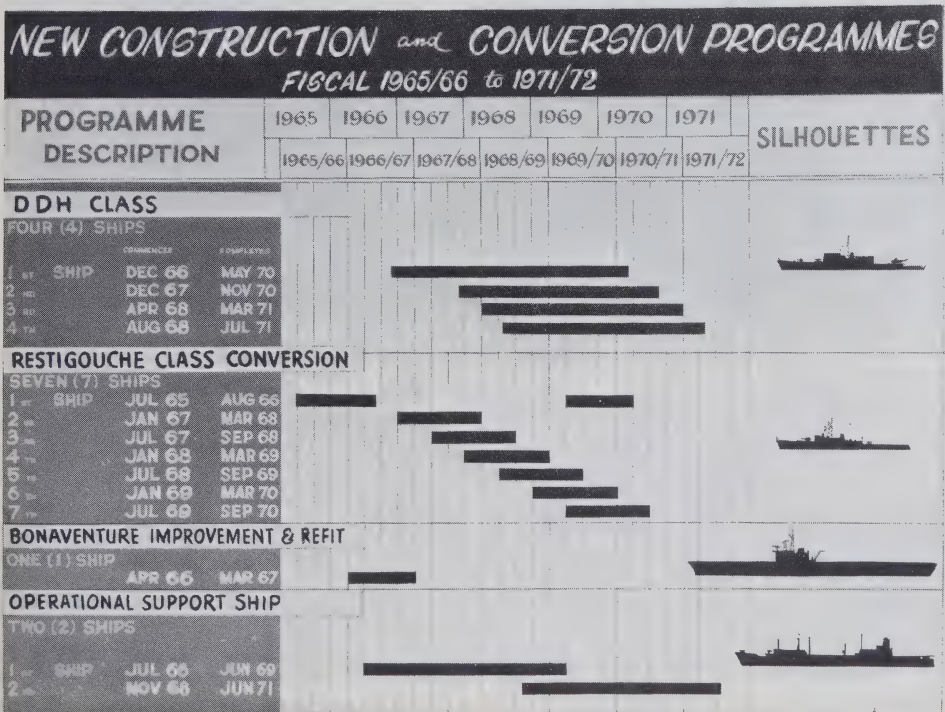


Chart 1, which is on the easel gives our current programme for the construction of new ships and conversion of existing ships to improve

their ASW capability. You will see that we plan to build four helicopter carrying destroyers, to which we have given the short title of DDH. We have scheduled a conversion programme to improve the ASW capability of the 7 Restigouche class destroyer escorts and we plan a major refit for *Bonaventure* commencing in 1966. We also intend to build 2 operational support ships as soon as possible.

I would like to give you a more detailed description of the improved capabilities which will result from this programme.

DDH Characteristics



DDH Type Ship

Chart 2, which is on the other easel is a photographic sketch of the DDH type ship. The primary task of this ship is hunting submarines and it will be fitted with the most up to date active sonar detection equipment available. That will be our own newly designed integrated VDS and hull mounted 505 sonar. In addition each ship will have a greatly improved underwater listening capability through the installation of equipment which will monitor a number of sonobuoys dropped from the ship, helicopter or aircraft. Further detection range and operational flexibility is achieved by having available on board two sonar equipped sea king helicopters.

I would like to point out that the number of helicopters carried will vary with the nature of the operation, but it will be capable of carrying two helicopters when required.

The ship and helicopters are equipped with underwater weapons capable of dealing with fast and deep submarines.

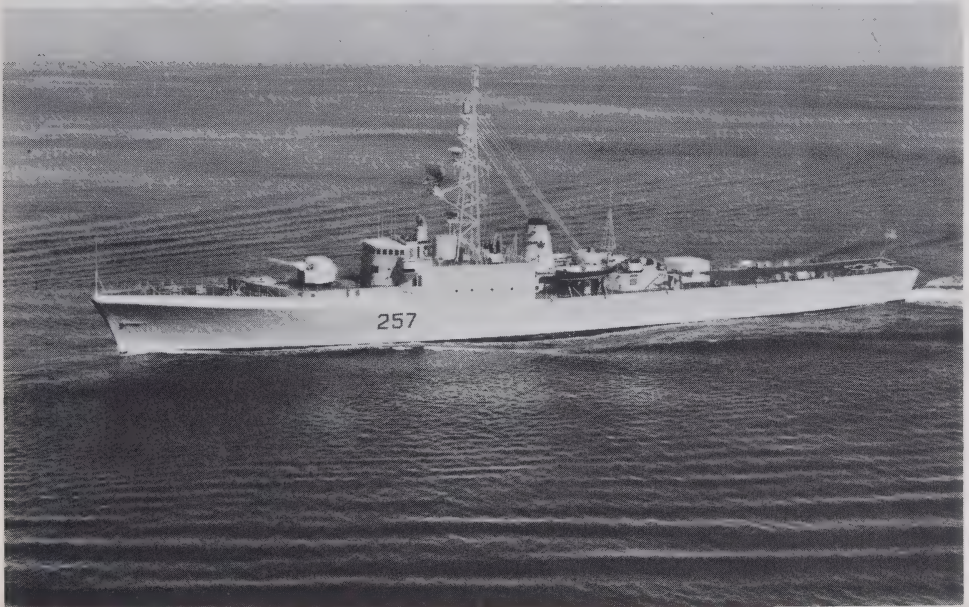
The hull will be increased in size to provide space for the fitting of a missile system for self defence against air attack. The ship will carry a 5" gun for defence against surface attack and for support of land operations if required.

The question may be asked why we do not make our ASW destroyers go as fast as a nuclear submarine. Nuclear submarines are capable at the present time of running up to 35 knots. You will appreciate the problem of doing this in a destroyer in the north Atlantic in the winter. With a helicopter in a 27 knot ship we are satisfied that it will be possible for the destroyer to maintain contact with a 35 knot submarine which continues to move at high speed for a period of up to 10 hours, unassisted by outside forces. This would give plenty of time to call in additional assistance if the task is simply to track the submarine, or to carry out effective attacks in event of hostilities.

It may be worth mentioning here that in my opinion the last thing nuclear submarine commanders are likely to do is rush along at 35 knots in a tactical situation for any extended period. At any speed over 20 knots they are detectable at extremely long ranges, and, moreover, are blinded by the noise they generate into their own detection equipment. A blind and noisy submarine is a very vulnerable target to any type of ASW force.

I will not go on with the techniques of hunting nuclear submarines but we feel that this DDH design will provide a versatile up to date ASW ship which will hunt nuclear submarines successfully and will have sufficient flexibility to provide an appropriate measure of self defence and ability to support peacekeeping operations.

Restigouche Conversion Programme



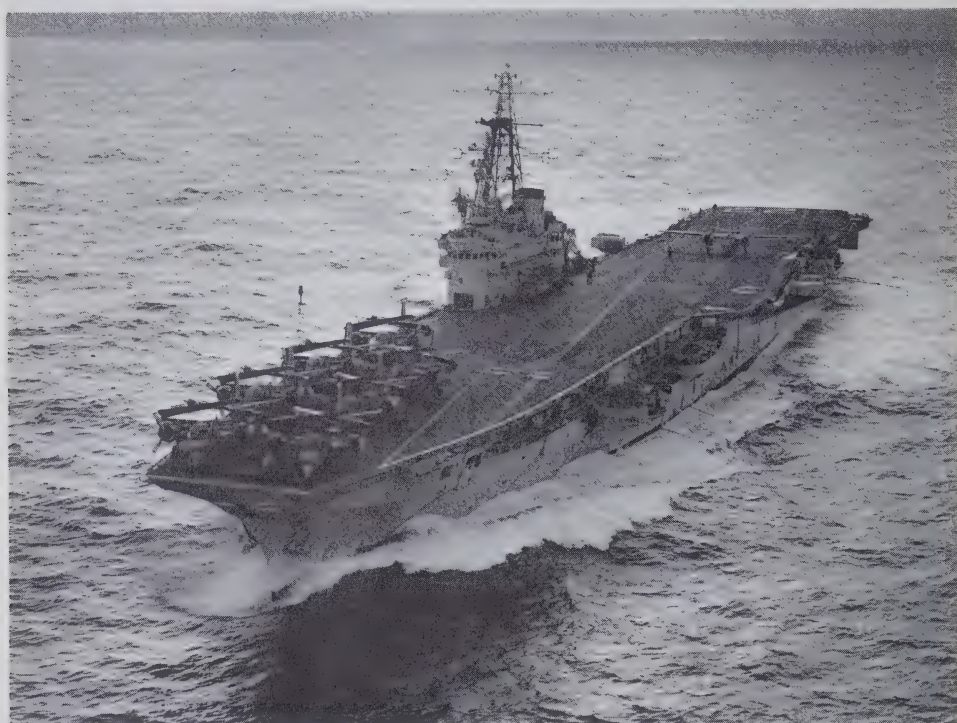
RESTIGOUCHE Class Destroyer

The Restigouche Class conversion programme provides for updating of the ASW capability of seven ships of this class. This involves the fitting of the same

sonar system and equipment that is being installed in the DDHs and which I described before. These ships will also be provided with a long range quick reaction anti submarine rocket weapon called ASROC. This will provide these ships with an ability to deal with nuclear submarines in the 1970's. The photograph on the chart is an actual photograph of the *Restigouche*, with the modifications made in accordance with our conversion programme.

The ASROC is a fully operational weapon system in use in the USN which can fire a homing torpedo or a depth charge to ranges of up to 5 miles. This means we will have the ability to immediately attack our sonar detections at long ranges in all weather. We envisage employing an ASROC fitted ship in company with a helicopter fitted ship to provide an ASW force with the maximum capability and flexibility to detect and attack submarines.

Bonaventure Improvement and Refit



HMCS BONAVENTURE

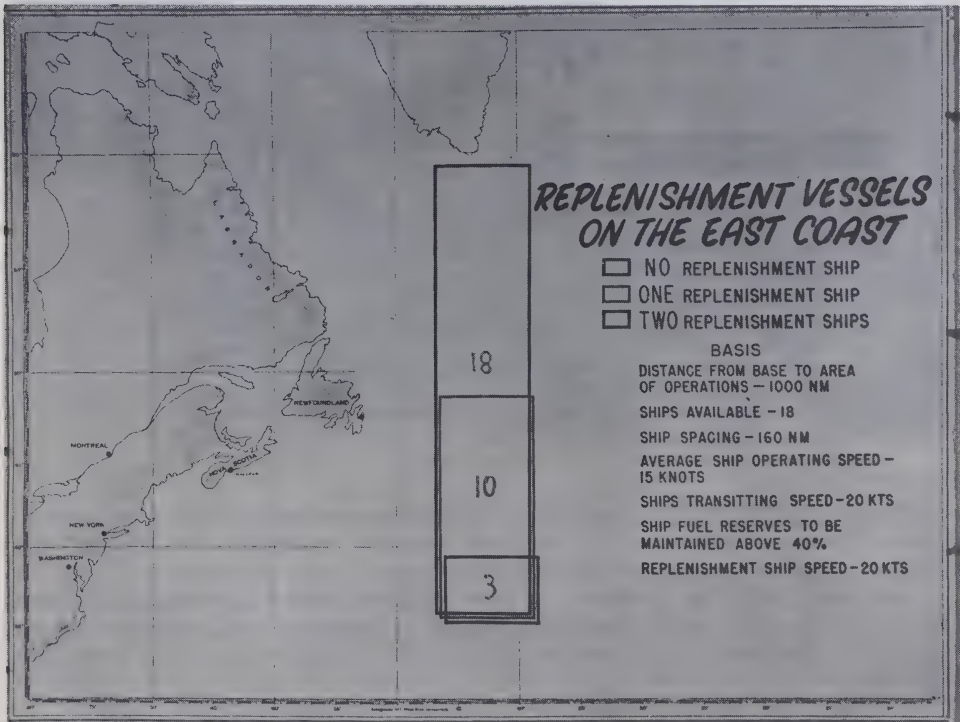
Bonaventure, which is next on the programme chart, is scheduled to go into normal half life refit in the spring of 1966 and during this refit it is planned to up date some of the systems on board. The main change in the ship's characteristics is in the long range radar. With the fitting of the new radar we are able to make a significant improvement in our ability to operate and control ASW aircraft and helicopters.

It may be worthwhile to remark on *Bonaventure's* operational capability which has been repeatedly demonstrated in tactical exercises. In general terms, with a load of sixteen S2F aircraft, she is capable of conducting effective ASW and surface surveillance and attack over a large area of the ocean and with

refuelling at sea this effort can be maintained for a continuous 30 days. Five aircraft can be kept airborne continuously, and this ASW effort can, of course, be moved to any part of the world where it is required. A carrier as compared to land-based aircraft is most effectively employed when the area of operations is more than about 600 miles from a shore air base.

Operational Support Ships

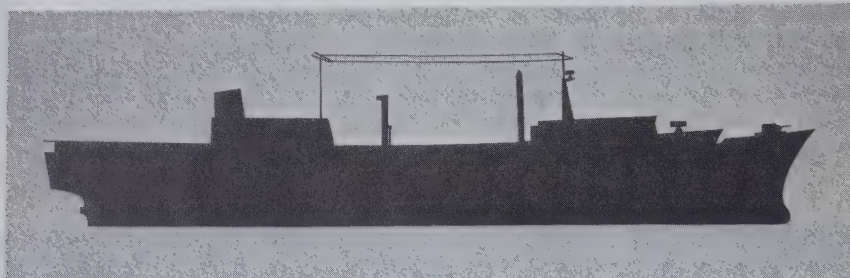
These ships at present are programmed as shown on the programme chart. You will notice that the present plan is to build them in sequence. It is still under discussion however as to whether they will in fact be built in sequence or concurrently. The main reason for building them in sequence is financial. However, as I have said, the matter is still being discussed because there are savings to be made if the ships are built more or less together.



I would like to explain how these support ships improve our operational ASW capability. The limiting factor in the time our forces can maintain patrol in a surveillance area is fuel available. Taking the hypothetical case—and, I emphasize that this is a hypothetical case—shown in Chart 5 of 18 ships on patrol 1000 miles from Halifax it will be seen that because of transit time involved and if no on station refuelling capability is available only 3 ships can be maintained constantly on patrol and these would give a ASW surveillance of the area enclosed by the yellow line. If one operational support ship is available for at sea refuelling the number of ships on station would increase to 10 and the area covered would be that enclosed in the blue line. If two operational support ships are available 18 ships can be maintained constantly and cover the area within the red line. One operational support ship based in Esquimalt could maintain the ASW ships presently allocated

to the Pacific command constantly on AS patrol in our area of responsibility. Therefore to make the maximum use of our present and planned operational ASW forces we require 3 operational support ships. At the present we have one in the *Provider*.

OPERATIONAL SUPPORT SHIP



REPLENISHMENT ROLE		MILITARY SEA-LIFT ROLE (TYPICAL)	
<u>PETROLEUM PRODUCTS</u>		ARMY HELICOPTERS	- 2
FURNACE FUEL OIL	- 11,000 TONS	ARMED PERS CARRIERS	- 12
DIESEL OIL	- 450 TONS	SCOUT CARS	- 23
AVIATION FUEL	- 760 TONS	TRUCKS 2½ TON	- 8
LUBRICATING OILS	- 30 TONS	" ¾ "	- 7
<u>AMMUNITION</u>	- 315 TONS	" ¼ "	- 36
<u>REPLACEMENT HELICOPTERS</u>	- 3 CHSS 2	TRAILERS 1½ "	- 1
<u>STORES</u>	537 TONS	" ¾ "	- 4
<u>PROVISIONS</u>	403 TONS	" ¼ "	- 82

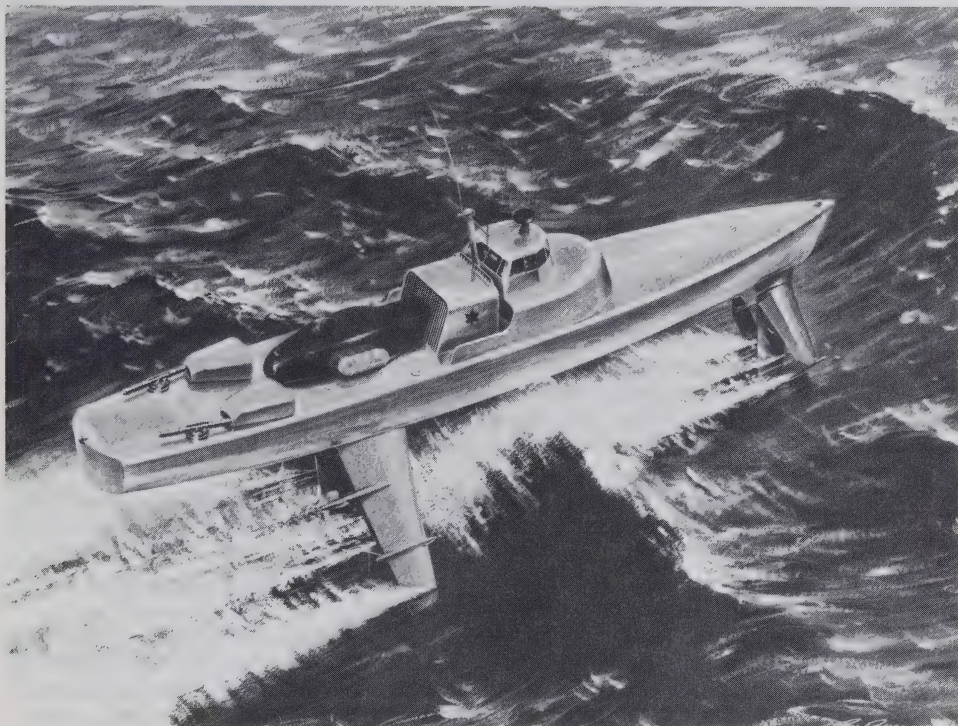
Sea Lift Capability

You will recall at the beginning of this presentation I stated that we had a requirement to provide an additional sea lift capability for the support of forces employed in peacekeeping operations.

We have therefore included in the design of these operational support ships, the necessary arrangements to embark transport and unload military equipment and stores which may be required by a Canadian military force such as the special service force. As indicated in the characteristics chart this class of ship could carry approximately 200 vehicles depending on the types to be transported. This would be in addition to the capacity to carry considerable tonnage of fuel, ammunition and stores shown in the left hand column of the chart. It is evident that this ship would also provide a self-contained Canadian supply base and medical facility for troops ashore in some country where local supply may be inadequate. To give the operational support ship self protection against small local surface and air attack we intend to fit a 3" gun and make provision for the fitting of the same type of missile system that will be fitted in the new DDHs.

It should be noted that two of these ships with *Provider* and *Bonaventure* could carry up to 7000 tons of military stores to any place in the world and therefore will provide the necessary sea lift to meet our peacekeeping commitments.

There are two other ship programmes not shown in chart 1 which are of considerable import.

Hydrofoil Programme

HYDROFOIL
(Artist's Sketch)

We are constantly searching for some means of providing a more effective submarine surveillance and detection capability at less cost. In this search we feel that the hydrofoil may be able to combine the capability of an AS destroyer escort and a helicopter into a smaller, a less costly vehicle and requiring considerably less manpower. The first thing to determine is whether a hydrofoil can effectively operate in the open ocean under all weather conditions. After trials with scale models we are now developing and producing a prototype ocean going ASW hydrofoil which should provide the final answer to the question on seagoing capability by the end of 1967. If this prototype is successful, and we are confident that it will be, there will be a requirement to build a number of these vessels.

Submarine Programme

At the present time we have one training submarine, H.M.C.S. *Grilse*, on the west coast which is of world war II vintage and which will reach the end of her useful life in the early 1970's. We are presently actively investigating means of providing a more modern submarine to replace H.M.C.S. *Grilse* and which will also contribute to our own anti-submarine capability.

I will now ask Commodore Davis to explain some of the technical aspects of this shipbuilding and conversion programme.

Commodore S. MATHWIN DAVIS, R.C.N. (Director-General, Ships):

You have heard from Commodore Charles of the major constituents in the current programme. I should like to speak for a moment on the technical, production and financial implications involved—the considerations that must weigh with the industry, and ourselves serving the chief of logistics, engineering and development.

WARSHIP DESIGN AND CONSTRUCTION

It is perhaps helpful, initially, to review generally the activities involved in the development of a warship design and the construction of a programme of major war vessels. Here, it must be observed that from the enunciation of a set of ship characteristics, which essentially is a document describing what is wanted in a ship, actions proceed, sometimes concurrently, in several differing fields.

Initially, a series of approvals, particularly financial, must be obtained; similarly the bases of the design itself are developed and themselves approved.

Further, at an early stage, preparations must begin of the specifications and contract demands for major components of equipment, which are bought by DDP on a class basis. These fall into two main categories—those for the ship itself, principally the propulsion plan, and, concurrently, items of fighting equipment.

Investigation shows that the 'pacing' items—that is to say those which govern the overall speed of a programme—for the construction programme are, in fact, major components of the propulsion equipment—turbines, gearing, boilers, etc. These are the most important among several score of items which must be planned to arrive in the shipyards when the hulls are ready to receive them. They gather this importance from the considerable period necessary for their specification, procurement and manufacture. This is, in fact, considerably in excess of the time necessary to construct the hull to the point at which the items should be appropriately installed.

Thus, when we speak of starting a building programme for a class of destroyer escort type vessels we must, of necessity, comprehend that the start is made in industrial plants rather than in the yards themselves.

While procurement and manufacture of items of equipment are under way, work can proceed on the design, drawings and specifications of the vessel itself, so that construction can commence as required by the overall programme.

DDH's

In the light of the above observations I would now like to deal in more detail with the DDH's, which is the sketch you see here.

Treasury Board approval has been obtained for this programme and the first specifications and contract demands for major components have been passed to DDP, while others will follow in an orderly and planned fashion.

In dealing with the programme as a whole we are benefitting from our growing experience, and that of our colleagues in the air force, with programming techniques. Scheduling and planning is being given particular prominence and it is our hope and anticipation that the first contract can be let to a shipyard by December 1966.

I should like to emphasize here that a 'symbolic' keel laying could take place much before that date. All concerned, however, are determined not to start work in the shipyards until these are fully supplied with drawings, specifications, information and material deliveries to ensure a continued and economic application of manpower.

The basic design of DDH's is now firm and we are proceeding with its detailed development. In order to carry the additional armament, to meet the demands of exacting stability criteria and to provide a margin for future growth, the vessels will be somewhat larger than earlier destroyer escorts. This larger size will also enable them to carry more fuel with an increased endurance.


















To ensure that the new ships reflect the best of our current experience we have had a team at sea for some weeks using work study techniques to conduct a critical examination of all aspects of accommodation layout, habitability, command and control and ship operation generally. Further work in this field is intended, so as to produce the most effective bridge and operations room layout.

In assessing the power plant to be installed, we are being governed by considerations of improved reliability or maintainability, by ease and economy of production, or by significant increase in technology. Here, significantly, we hope to achieve some increase in automation, making bridge control of the machinery a practicability—with a reduction of operating personnel.

It is anticipated that the construction period for the first vessel will be 3 to 3½ years, the time for the follow ships being somewhat shorter. Further we do not intend to start the second vessel until about 12 months after the first, so that full advantage of building experience can be gained. We hope that the four ships will be completed by about mid-1971.

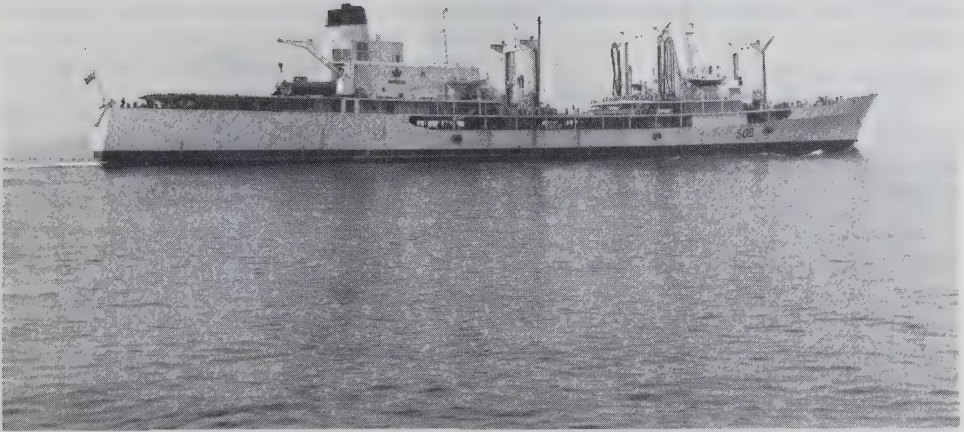
APPROVED BUILDING AND CONVERSION PROGRAMME

APPROVED BUILDING AND CONVERSION PROGRAMME

TYPE	NUMBER	TOTAL PROGRAMME COST (\$ M)	1965	1966	1967	1968	1969	1970	1971
DDH	4	142							
RESTIGOUCHE CONVERSION	7	65							
OPERATIONAL SUPPORT SHIPS	2	36							
BONAVENTURE	1	8							

Operational Support Ships

Here we are concerned with what is fundamentally an improved *Provider*. This vessel has been the subject of a good deal of comment from time to time and I am glad to have this opportunity to dwell for a moment on her good points.



HMCS PROVIDER

We have indeed had technical difficulties with *Provider*, but these were, in large measure, a reflection of the demanding tasks we have set ourselves. There are very few fleet replenishment vessels in any navy which attempt the demanding and varied replenishment tasks of *Provider* in such a relatively small vessel. It was therefore, by no means surprising that we should have a number of technical problems to resolve in ensuring that the equipment, and the men who operate it, meet the exacting standards we are seeking. Too often it is the problems that are highlighted—not the concerted effort that goes into their resolution.

I was, however, fortunate to be at sea in *Provider* during early December in one of the worst Atlantic storms of this century. She behaved splendidly at sea and shortly after this, still in adverse conditions, refuelled two DDE's simultaneously while proceeding at 18 knots in pouring rain and, ultimately, in darkness. This brings an encouraging sense of achievement.

However—there is no doubt that we have had our troubles, some of them are still with us and are receiving concentrated technical consideration, about whose outcome we are optimistic. Indeed *Provider* and *St. Laurent* recently gave a most successful replenishment demonstration in the Barbados for a group of N.A.T.O. and commonwealth naval attachés and our overall replenishment effort is highly regarded by the U.S.N.

There is, however, much to be achieved in preparing a comprehensive set of contract documents for tender purposes, and this will occupy us for most of this year.

Treasury board approval for this programme has been obtained, we hope that the contract for the first vessel can be let in mid 1966 and, as you have heard, the timing for the second vessel will be reviewed.

In our design work we recognize, of course, the particular importance of obtaining the maximum benefit from *Provider's* experience and to this end we have mounted a major work study of all her operational activities—including the experience gained during a recent exercise in an army support role. In addition, we are employing consultants to engage in a critical examination of all the replenishment equipment.

Basically, the operational support ships will be generally similar to *Provider* below the main deck, but with appreciable changes to the superstructure—particularly in regard to the provision of additional accommodation and space for army vehicles and equipment. We feel that we can cope adequately with the replenishment activities by using four stations in the new ships, instead of the six in *Provider* and, as you have heard, this will enable us to fit some armament forward—in recognition of the army support role.

Restigouche Conversions

You will be aware that we have been progressively converting the destroyer escorts as they reach their mid-life. The turn of the *Restigouche's* is now approaching and, as you have heard, installation of a Canadian developed hull-mounted and variable depth sonar and the provision of an ASROC missile system are being planned.

The first ship to be converted will be *Terra Nova*, which is to be taken in hand by Halifax naval dockyard in July of this year, for installation of the sonar system. There are many problems yet to be worked out in a prototype vessel and by carrying out this work in the dockyard we have the opportunity to produce for the follow ships more comprehensive and accurate drawings for tender purposes.

The remaining six ships will be undertaken in sequence from the beginning of 1967, with the work being carried out in private yards. *Terra Nova* returns at the end of the programme for the fitting of the ASROC system and it is anticipated that work on this class will be completed by mid-1970.

Bonaventure conversion

This task does not properly come under the heading of new construction, since the prime objective will be, as you heard from Com. Charles, a major refit of the vessel—the first of such magnitude she has had. In conjunction with this refit it is intended to improve and simplify a number of important systems which have, over the years, proved to be excessively demanding in maintenance effort. There will also be some changes in radar, communication equipment and in accommodation and maintenance workshops appropriate to the aircraft to be carried.

Finance

Now coming to the more sober matter of finance, it is our practice to deal with costs on a program basis with appropriate allowances for spares and associated equipment. Present estimates—which are all in 1964 dollars are as follows:

	\$ Million
DDH programme (4 ships)	142
<i>Restigouche</i> conversions (7 ships)	
Prototype by dockyard	65
Operational support ships (2 ships)	8
<i>Bonaventure</i> improvement and refit	8

It is perhaps of interest to observe that the overall value of Canadian content in this total program is estimated to be about 85 per cent.

Conclusion

These then are the major tasks before us technically. While it may seem to be some time before work appears in the shipyards, I hope to have succeeded in impressing you that we in the Department of National Defence and our colleagues in defence production have a great deal to accomplish in what to us, is a relatively short time. Above all, we will be jointly expending very considerable effort to ensure that our contractual documents, specifications and overall planning will facilitate orderly, economic and timely production of vessels. Thank you.

The CHAIRMAN: Thank you Commodore Davis and Commodore Charles. We are now open for questioning. I have Mr. Groos, Mr. Winch, Mr. Temple and Mr. Harkness on the list. You are first, Mr. Groos.

Mr. GROOS: I wonder whether Commodore Charles could tell us the difference between the DDH, which has just been described to us, and the general purpose of the frigate that was proposed previously. It would be of some interest to me to have some idea of the difference in the cost of equipment that will be installed and the capability.

Mr. CHARLES: Mr. Chairman and gentlemen, the general purpose frigate was a ship that was designed for general purposes, and one of the major equipment items was an advanced and expensive missile air defence system. In the DDH ship we are fitting improved ASW capability over what we had planned in the frigate, due to the advance in technology and the time period involved. We are also fitting a short range missile system which is not nearly as complicated or as expensive.

I wonder if that answers your question?

Mr. GROOS: Is there any difference in the hull or the propulsion unit?

Mr. CHARLES: I wonder if I might ask my colleague, Commodore Davis, to answer that question.

Mr. DAVIS: There are differences in the hull, yes. We are putting to good use in the DDH the experience we gained in designing the general purpose frigate. The size is similar. The propulsion plant is very similar. Certain of the components that we plan to use in the general purpose frigate, however, will not be used in the DDH. They have been overtaken by advances in technology.

Mr. GROOS: Is it correct that the cost of some of the equipment in the DDH ship will be less than in the proposed frigate?

Mr. DAVIS: I would say that a large measure of the expense in the general purpose frigate program arose from the very sophisticated armament, particularly the long range missile system and all of the associated electronic equipment, and indeed the cost of the missiles themselves. These very large expenses will not be present in this program. This accounts for the major differences.

Mr. GROOS: I notice that the DDH, according to your cost program, will be \$142 million. This will make the individual cost around \$37 million; is that right?

Mr. DAVIS: About \$35 million. This cost also includes a fair proportion for support and for ammunition.

Mr. GROOS: Does this cost include the cost of the equipment?

Mr. DAVIS: Yes. This is the cost of the program.

The CHAIRMAN: Does that complete your questioning, Mr. Groos?

Mr. GROOS: Yes, thank you.

Mr. LAMBERT: Does this include the cost of the two helicopters?

Mr. DAVIS: No, it does not.

Mr. WINCH: Mr. Chairman, there are a number of questions I would like to ask at this time, although I recognize that perhaps all of us would like at some time to study the two presentations made to us. However, there are a number of questions I would like to ask now. Before doing so, I would like to express my very great appreciation of the fact that, as a result of an invitation from the navy, four members of this committee were requested to attend and did attend the Springboard exercises at Puerto Rico. I want to say that it was one of the most fascinating experiences of my life. I also want to express my appreciation, Mr. Chairman, for the fact that within about 30 minutes of our being landed on the aircraft carrier *Bonaventure*, both the Commodore and the Captain informed the four members of this committee that although exercises were set out, if there was anything not there that we wanted to see or take part in, or anything about which we wanted to ask questions, we had absolute freedom to do so. It was because of that latitude that was given to us that I think we, on behalf of this defence committee had an experience which I hope will be of benefit to the committee in our discussions.

It is because of that fabulous one week of experience and the presentations now made to us that I would like to ask three or four questions.

I would like to direct this question to Commodore Davis. In paragraph 3 of page 3 of your presentation you state:

To ensure that the new ships reflect the best of our current experience, we have had a team at sea for some weeks using work study techniques to conduct a critical examination of all aspects of accommodation layouts and habitability...

and so on.

We had the opportunity of being not only on the *Bonaventure* but also on a number of destroyers. On this question of accommodation layouts and habitability, we ran into one big problem, and that was air conditioning. In view of the fact that you are building new ships and you are now in the planning stage, my first question is what is being done in that regard?

Let us take the case of the destroyer *Annapolis*, which has just been put into service, there you have complete air conditioning. This is on a basis where the air conditioning has a series of pipes. At times the weather is cold, so you get cool air; and on other occasions it is warm, so you get the warmth. We discovered, sir, that even down off Puerto Rico in certain rooms, officers' quarters in particular, they had to have two or three blankets a night because there was no controlled air conditioning. We then went on the *Provider* where we were not only nine month ago but just a week ago, and one of the major complaints was air conditioning.

Without mentioning any names, I assure you that I—and I think the others—asked questions about this, and one answer we got was that whoever is the air conditioning engineer, when transferred to a warship does not know what the problems are. I am not going to mention the *Bonaventure* which has no air conditioning, in which they operate in many sections, from 120 degrees to, on occasion, 180 degrees.

In view of what you have in mind now in the planning of new ships or reconversion, is this matter of air conditioning being tackled in a different manner from the way on which it was handled even as late as the commissioning of the *Annapolis*, which has not functioned as it should? That is my first question.

Mr. DAVIS: Air conditioning is a matter for which we have been criticized by a great many people at many different times. It is our aim in air conditioning, as it is our aim in all of our many problems, to improve. However,

I must say that the prime purpose of air conditioning is not initially for the comfort of people. It is to ensure particularly that the temperatures are controlled in various electronic spaces, to ensure that the vessel can operate in a closed down condition on those occasions when they have to go through a toxic cloud of one sort or another. Sometimes it is difficult to ensure that these various requirements are met at the same time as human comfort is considered. Sometimes the equipment and systems which are installed and are balanced, are deliberately put out of balance by people in one area closing off ventilation which irritates them, then other people receive an excessive amount. It is difficult occasionally to match our ingenuity with the ingenuity of the people who mishandle the system. However, we are very sensitive about your criticisms, Mr. Winch, and about the criticism of any ship's company. We do have it closely under review.

Mr. WINCH: May I just add this? Would you agree that if Canada is going to spend a few hundred million dollars on new ships or reconversions that morale is a factor, to use your own term, that is sometimes governed by your word "habitability"?

Mr. DAVIS: Without question there are many things we have to achieve in ship design; morale is not the least of these.

Mr. WINCH: On my second question, Commodore Davis has given us considerable information on new ships or reconversions. We know that the ASW capability is still going to hold very top priority. Therefore, that must entail the use of a variable depth sonar.

About nine months ago we were in Halifax, and from the airbase we went to Bermuda. At that time they had demonstrated one destroyer of a variable depth sonar. I was somewhat amazed in our recent week off Puerto Rico to discover that they did not have a variable depth sonar. Therefore, following the information given to us by the Commodore and the Captain, I and the others asked questions. My information, after this period of having seen it nine months ago, on why they did not have a variable depth sonar on our destroyers is that on steel cable there was a compression factor which was detrimental. Nylon cable stretches.

In view of that information on why we still do not have variable depth sonar on our destroyers, in view of the fact that under the construction program or reconversion that we have now, are you able to tell us whether that problem has been or is being solved? You cannot utilize this marvellous Canadian invention or discovery if you do not solve the problem.

Mr. DAVIS: May I ask you, Mr. Winch, which vessels you were aboard?

Mr. WINCH: We were on board the *Bonaventure* and *Annapolis*, the *Gatineau* and the *Terra Nova*.

Mr. DAVIS: The *Gatineau* and the *Terra Nova* will be coming into conversion in the conversion program of the seven Restigouche class; and during this conversion they will be receiving the variable depth sonar.

Mr. WINCH: My question is: Have you resolved the problem of the cable which we were told about?

Mr. DAVIS: I have not resolved it. I am afraid this is not my responsibility. These ships will be getting a different kind of variable depth sonar, an advance upon the present one. I am informed that the cable problem is resolved, yes. It is a difficult problem though. I should perhaps emphasize that the question of cable behaviour in variable depth sonar is one of the more difficult technical problems to be solved, and it is an area in which we in the R.C.N., with the help of the Defence Research Board, are pioneering. It is not unusual that one would expect problems in the development.

Mr. WINCH: I am sorry, Mr. Chairman, but this now indicates what I am after to some extent. In view of the fact that you place emphasis on ASW and that it is therefore going to be based to considerable extent on the variable depth sonar, have you resolved that problem before you go into production?

Mr. DAVIS: Now we have, yes. I am speaking now of sometime past, the early days.

Mr. WINCH: I am not quite certain about this, but it is one of the matters that intrigues me. Perhaps if we do not have the information here it could be obtained. Another matter was drawn to our attention. This comes to my mind now because it is not only going to be on the destroyers or one of the Sea Kings; there are going to be two. I am speaking of this request to pursue the policy and the facet of ASW by the navy on a 24 hour basis. We were informed that one of the big problems with helicopters—and this is on the Sea King—is on night operations, that there is no facility or no instrument in night time operations on ASW that will let them know how they can overcome the relationship between the height of the aircraft and the water. Is it possible for this committee to have any report on whether that major problem is being resolved?

Mr. DAVIS: Not from me.

Mr. CHARLES: The situation is that it is indeed a difficult problem to maintain height above the water at night in the hover position with the helicopter. In fact, the helicopters are doing this at the moment. The same helicopter is operating from American carriers at night, so it is done. What we have to do is improve the safety factor in this and we are certainly doing everything we can to provide a more sophisticated and capable device to achieve a higher safety factor in this operation. However, it is true to say that the helicopters can and do in fact operate at night now.

Mr. HELLYER: Mr. Winch, I might just add that I would suspect that it would be possible to develop instrumentation to overcome this problem. I am speaking now more from general principles than specifically.

Mr. WINCH: I notice in Commodore Davis' report he speaks about the Pacific coast where there is also an ASW. Is there any contemplation of training of ASW with an aircraft carrier on the Pacific coast?

Mr. DAVIS: Not to my knowledge.

Mr. WINCH: How are you going to complete training or is it going to move both aircraft, men and ships to the Atlantic in order that on the Pacific coast they have the same training and experience as they have on the Atlantic coast because any probable attack could be just as instantaneous on the Pacific coast as on the Atlantic coast.

Mr. CHARLES: So that I may understand your question, you feel that a training submarine has been allocated on the west coast for ASW training and not on the east coast.

Mr. WINCH: No; I am talking about an Aircraft Carrier.

Mr. HELLYER: Mr. Winch, in the antisubmarine role there are different weapons systems. A carrier and its complement of airplanes or helicopters is one; land based airplanes is another one; destroyer escorts with or without helicopter support is another; submarines is another one and, if the development works out properly, hydrofoils is also another one. So, there are many different antisubmarine weapons systems. Now, there are mixes of these systems which probably are more effective than others. But, you do not necessarily use nor do you have to use all the different systems on every occasion. Indeed, they are not because we have only one carrier, for example, and it can only patrol or participate in the control of a certain area. We have to cope with other areas

by means of other antisubmarine weapons systems. It is impossible when we have only one carrier to have this particular weapons system on the west coast. The fact it is confined to the east coast does not mean the antisubmarine weapons systems we have on the west coast are not effective; it just means we do not have that particular one as part of our west coast complex.

Mr. WINCH: In April of next year the aircraft carrier *Bonaventure* goes in for a refit, and I have been given to understand that it is going to cost around \$8 million.

Mr. DAVIS: The combined refit and the new work will amount to that.

Mr. WINCH: In connection with that refit and the figure of \$8 million I will have to make an approximate estimate but I would say between 300 and 400 men out of 1,341 that were on board the *Bonaventure* the week we were billeted there lived and worked in what I would call unmitigated hell, and I mean unmitigated hell. I realize it is a warship but their accommodation is terrible. I was in one mess which catered to a total of 48 men and it was so crowded that there was not room for even one card table for the men to play cards. There was no recreational room whatsoever. I have discussed this with the other three members, who were also in the lower deck, as I was, and the temperature was very extreme not only in the working areas but where they lived and ate. Honest to God, the temperatures are such that, in my opinion, they should get double what they get, not only because of where they have to work but where they have to live 24 hours a day. Do not forget, we have only one aircraft carrier and it has to be at sea in order to give the necessary training. It is at sea for a fantastic length of time. I would like to ask in respect of the \$8 million reconversion programme, which will take over a year, if any consideration has been given to accommodation and air conditioning.

Mr. DAVIS: Mr. Winch is quite justified in saying what he has. These characteristics are representative of the ship's age and the fact that we consistently have tried to do too much with her. They are typical not only of this vessel but all vessels of similar age in other navies. We have here a clipping from the *Guardian* two weeks ago, in respect of the *Ark Royal* which is almost word for word with what Mr. Winch said.

Now, in the changes that will be made to the vessel as part of its modernization, which is perhaps the best word to use, we are proposing to improve the ventilation as well as the accommodation by taking certain spaces which are being vacated and making them into additional mess decks. However, I must be quite clear and say that these improvements can only be marginal; they are not going to make a fundamental difference to the ship itself. A fundamental difference can only be achieved by the expenditure of a very large amount of money and, furthermore, by very marked reduction in the ship's complement. At the moment the latter does not seem possible. By removing or simplifying our systems on board we are attempting to reduce a large amount of maintenance work which is now necessary. We hope by reducing the amount of maintenance we then could reduce the numbers of people who are on board doing this maintenance work. But the plain fact is that we are trying to do more with the ship than she is really capable of because of her size. We are trying to put a quart in a pint bottle.

The CHAIRMAN: I have Mr. Temple, followed by Mr. Harkness, Mr. Lambert, Mr. MacLean and Mr. McMillan.

Mr. TEMPLE: Mr. Chairman, I would like to clarify a few matters which previously have been raised by Mr. Winch in respect of a particular exercise. I am sure that the *Annapolis* has variable depth sonar.

Mr. DAVIS: This is so, although I did not want to contradict Mr. Winch.

Mr. WINCH: Well, I understood they were having trouble in this connection.

Mr. DAVIS: They may be having trouble, but she is fitted with this equipment.

Mr. TEMPLE: In respect of the new Sea King it is my understanding with regard to night flying manually it would be very difficult to position it and keep it in the hovering position over the water. I understand it is equipped with a machine of some type which takes over and allows for this to be done. Am I correct in this assumption?

Mr. CHARLES: This is correct; it has automatic hovering.

Mr. TEMPLE: With the new ship program will we have, in 1971, as much ASW capability as we presently have?

Mr. HELLYER: I am not sure both the commodores will support this but we will have a great deal more. Each of the new DDH's will have an ASW capability, I would say, in excess of several of the world war II frigates currently being paid off. In addition, the installation of the hull mounted sonar and variable depth sonar, the addition of the ASROC and the improvement in techniques, together with the use of additional helicopters, should increase the antisubmarine capability very markedly. Then, in addition to that, as has been demonstrated, the acquisition of an additional support ship increases the operational capability of the antisubmarine fleet very considerably. I do not think anyone has worked this out mathematically so we cannot say just what order of magnitude it is. But, it is my belief that both in the surveillance area and in the potential kill capability the increase is really very substantial, and when I say "substantial" I think that is an understatement.

Mr. TEMPLE: Thank you. I realize that the *Bonaventure* usually would not operate alone, that it has escorts with it which have anti-aircraft capabilities; but, in the refitting of it is consideration being given to equipping it with missiles?

Mr. CHARLES: No.

Mr. TEMPLE: I understand the cost of the four new DDH's works out to \$35½ million each. Would the cost be exactly that for each one or would the first one cost more and the second, third and fourth less?

Mr. HELLYER: I think this depends on what tenders are received, and that is a little hard to predict. And, it might have some relationship to the private wishes of shipbuilding companies. I do not think that you could tell at this stage what the individual price might be. However, I think there is some potential advantage to be gained from the methods in which contracts are let, and this is being studied now, I hope, by the Department of Defence Production, in order to determine if we cannot obtain a reduction in the cost of subsequent ships due to the learning curve and the experience obtained in building the first one of the series. I can tell you from my standpoint that I am taking an interest in this and I have made a note to follow it up to make sure that full consideration is being given to obtaining the maximum benefits from the learning experience on the lead ship.

Mr. GROOS: Has the minister given any directives to the Department of Defence Production in respect of the method in which these contracts should be awarded or have you made any special arrangements?

Mr. HELLYER: There is no directive but there was a request that the alternatives be looked at with the advantages and disadvantages of each alternative from the standpoint of getting the best price and the most efficient production.

Mr. GROOS: I have a supplementary question.

The CHAIRMAN: Mr. Groos, I would prefer if you waited. Our experience in this Committee has been that when supplementaries are allowed we get away from the real topic and it is very difficult to get back to it.

Would you proceed with your next question, Mr. Temple.

Mr. TEMPLE: I do not know whether or not my next question is in order but could you tell us what the approximate cost of a new carrier would be.

Mr. DAVIS: Well, of course, this would vary with its size. Pursuant to my answer to Mr. Winch's question, I think if we were going to consider a new carrier we inevitably would think of one larger than the *Bonaventure*—that is, to operate as a carrier—and I will amplify that point in a moment. If you consider such a vessel with the rather complex electronic equipment that would be necessary for handling aircraft and directing them you are not going to get much change out of \$100 million. And, it would be quite appropriate in that size of vessel to think of a nuclear carrier which would be somewhat more expensive.

However, there are simple carriers, or what appear to be simple carriers. For example, there are the American commando ships, which carry marines, the Iwo Jima class, which have the appearance of an aircraft carrier but, in reality, operate only helicopters and carry some 2,000 marines. Their cost would be of the order of \$60 million. A great deal depends, not so much on the size of the ship, but on the sophisticated equipment, both electronic and mechanical, which is necessary to handle the aircraft. They are not cheap.

Mr. TEMPLE: My last question may have been away out and perhaps this one is, but rather than reconverting, say, an existing ship, if we were offered an American carrier which is not up to date, do you think we should accept that?

Mr. WINCH: The *Eagle*.

Mr. TEMPLE: Would one which has to be reconditioned, refurbished and re-equipped cost almost as much as a new one?

Mr. DAVIS: No, I do not think so. But, I must say that we have been along this path in connection with the *Bonaventure*, and I am sure you have heard the results. Mr. Winch has been aboard this carrier. Certain people have indicated there are American carriers that could be used. This could be an advantage; you would spend a lot less money than building a new one, but—

Mr. TEMPLE: Would it not be penny wise and pound foolish more or less to think in those terms?

Mr. DAVIS: It has been my experience, not only with shipbuilding but in other fields, that by and large you get what you pay for.

The CHAIRMAN: Would you proceed now, Mr. Harkness.

Mr. HARKNESS: In respect of the four new DDH ships you state on page 3 that the hull would be increased in size. How much increase would there be in the size of the hull?

Mr. DAVIS: They will be about 30 feet longer and about a 4 foot increase in beam.

Mr. HARKNESS: Is this essentially the same hull that was planned for the general purpose frigate?

Mr. DAVIS: It will be similar. It is of the same rough dimensions, but the character of the vessel itself in this area to which I am pointing is quite different. Its dimensions are about the same and certain of the techniques we were developing in structural design will be used. But, it is not the same hull. We have gained from experience.

Mr. HARKNESS: But, you are making use of a good many of the plans which were drawn up for the hull of the general purpose frigate?

Mr. DAVIS: I would not put it as specifically as that. We are making use of a number of techniques that we developed in the preparation of that design, as well as some of the experience we gained. But, we really cannot use the plans, no.

Mr. HARKNESS: What specific difference is there in the size of the two hulls?

Mr. DAVIS: Very little; they are very close.

Mr. HARKNESS: What difference is there in the general construction of the hull? You were speaking a minute ago about the superstructure of the equipment.

Mr. DAVIS: All this area to which I am referring is different; the bow is different. Everything inside is different. But, again I must emphasize that we gained a lot of experience in design techniques, all of which we are putting to good use.

Mr. WINCH: On the *Annapolis*?

Mr. DAVIS: No. Colonel Harkness is speaking of the general purpose frigate. But, I do not exclude *Annapolis*; we have learned from everything we have done before.

Mr. HARKNESS: You spoke of the fitting of a missile system; what type of missile system is it and what is its range?

Mr. CHARLES: At the present time we are investigating the availability of a short range missile system, which is primarily a Sparrow missile fitted on to a 3 inch 50 gun mount.

Mr. HARKNESS: What is the range of that?

Mr. CHARLES: Mr. Chairman, I would like to be excused from answering that question, if I may.

Mr. HELLYER: Of course, this has a much shorter range than the one planned. It is entirely different, as you know. I think I should emphasize, however, the decision with respect to the missile has not yet been made, as pointed out when the programme was announced.

Mr. HARKNESS: I believe you stated in answer to a question before that it would be a short range missile system and not nearly as complicated as the one proposed for the general purpose frigate. In actual fact we know there were two missile systems proposed for the general purpose frigate, one a short range one and the other a long range. I presume this one, as far as its function and its range is concerned, is the same as the short range one which was planned for the general purpose frigate. Of course, the result will be there will be no long range defence against enemy aircraft as far as these vessels or the fleet as a whole is concerned.

Mr. HELLYER: I think you will agree with me that describing the Tartar as a long range missile system is something of a misnomer. In my opinion, the effectiveness of some of these systems is open to serious question.

Mr. HARKNESS: Well, that is a matter of judgment. But, basically, the general effect of this will be there will be no long range defence against enemy aircraft as far as these vessels or the fleet generally is concerned. Is that not a fact?

Mr. HELLYER: Well, I think you have to define what you mean by long range and, as the commodore has indicated, I do not think we should get into that in an open meeting. I do not think you could say that even the Tartar had a long range anti-air defence even though it was longer than the short point defence. Whether there is an advantage and how much the advantage is at the intercept point is a highly technical matter which, if you wish to pursue, we would consider in a closed meeting. But, I would not wish to get into this matter at the present time.

Mr. HARKNESS: Well, the point I really was making was that in respect of the general purpose frigate there were two systems, one designed for short point defence and one long range defence, and in respect of these present vessels we are making no provision for the long range defence.

Mention has been made of space being provided for the fitting of a missile system. I take it the missile system is not to be fitted immediately. When is it proposed that it will be fitted?

Mr. HELLYER: As soon as the choice has been made and the proper missile is available. We want to make sure we get one that is worth the money. Up until the present time we have not been able to come to the conclusion that we have the right one that is worth the money. But, we hope a decision can be made in this respect in the not too distant future.

Mr. HARKNESS: But the plan is it will be fitted some time after these ships have been in operation.

Mr. HELLYER: The plan is to retrofit, unless a decision is reached in time to parallel construction.

Mr. HARKNESS: But, at the time these ships go into operation, starting in 1970, they will not be fitted with the missile system.

Mr. HELLYER: In respect of this point, as the commodore pointed out, if we can make the decision in the meantime they will be installed as soon as the decision is made. It is quite possible, in fact, they will be installed by the time the ships become operational.

Mr. HARKNESS: Then the cost of the vessels as outlined does not include the missile system.

Mr. HELLYER: That is correct.

Mr. HARKNESS: What will be the additional cost estimated for the missile system?

Mr. CHARLES: It really is quite a relatively cheap missile system. We use the existing gun mountings; all it involves is a frame that goes on it, so it will be approximately \$10 million for the program.

Mr. WINCH: Without automatic control?

Mr. CHARLES: I am afraid we are getting into technical detail here.

Mr. WINCH: But automatic control would add a great deal to the cost of the installation?

Mr. CHARLES: Yes.

Mr. WINCH: Are you planning on manual or automatic control of missiles?

Mr. CHARLES: We will have the same facilities as the escorts have on the 3-inch gun at the moment.

Mr. HARKNESS: Then the cost of these ships will be \$45 million instead of \$35 million.

Mr. HELLYER: No, the \$10 million estimate is for the four ships. Each will be \$2½ million.

Mr. HARKNESS: Which will bring the cost up to about \$38 million?

Mr. HELLYER: Something of that order.

Mr. HARKNESS: Now, in respect of the Restigouche conversion programme there are essentially two changes being made, as far as I can make out; one is the installation of the variable depth sonar and the other is the installation of ASROC. Those really are the two changes being made.

Mr. CHARLES: That is correct.

Mr. HARKNESS: And the cost of that will be \$9 million plus for each vessel?

Mr. HELLYER: I think there is another change, the larger hull mounted sonar, which increases range.

Mr. CHARLES: The sonar equipment being installed is variable depth and hull mounted; it is integrated into one package.

Mr. HARKNESS: What is the cost distribution between sonar improvements and installation of ASROC in this \$9 million plus.

Mr. DAVIS: Perhaps I can take this step by step. The shipyard work itself comes to about \$3 million per ship.

Mr. HARKNESS: That is the cost of installation of changes in the superstructure and that sort of thing which is required to accommodate this.

Mr. DAVIS: Yes. If I took these figures in round terms for the programme would that satisfy you for the moment.

Mr. HARKNESS: All right.

Mr. DAVIS: The sonar improvements are approximately \$17 million.

Mr. WINCH: For the four ships?

Mr. DAVIS: For the seven ships, and the ASROC is about \$15 million. In addition, you add to the sonar equipment about another \$1 million for the handling gear. Those are the approximate figures. But, the ASROC cost does not include the cost for the first outfitting of missiles, which amounts to about \$2 million for the program.

Mr. HARKNESS: Well, what this essentially would amount to, if you break up the \$9 million plus, is that a little over half of it would be for the sonar and a little less than half for the ASROC.

Mr. DAVIS: Yes, or to put it another way, the total fighting equipment changes represent about half the cost of the overall program.

Mr. HARKNESS: Then how many of these missiles would be provided to each ship for the \$2 million odd that you indicated they would cost?

Mr. DAVIS: I would prefer not to say.

The CHAIRMAN: Gentlemen, I think I should interject here, if I may, and say that at times we may be treading on areas that are classified. As you know, this is an open meeting, and I hope you will all understand when our witnesses refuse to answer certain questions.

Mr. HARKNESS: Mr. Chairman, I will not push that at this time. I was just trying to get some general idea of the total cost of these things.

Now, I would like to turn to the submarine program. You state here on page 7, I think it is, that you are investigating the means of providing more modern submarines to replace the HMCS *Grilse* on the west coast. Is that of the Oberon class or is it a different type of submarine altogether?

Mr. CHARLES: We are investigating the various submarines available and what is required to replace this ship. We have not decided on the specific type at this time.

Mr. HARKNESS: In other words, this is just a general investigation which you have made?

Mr. HELLYER: This is a general investigation, but the anticipated replacement would come into this five year period.

Mr. HARKNESS: You have no cost figure on that?

Mr. HELLYER: No. It would depend on whether it was a new ship or a converted ship, just what the ultimate cost might be.

Mr. HARKNESS: But there is no plan in mind to put in one of the Oberons of the three that you now have, in the west coast?

Mr. HELLYER: Not of the three that are presently on order.

Mr. HARKNESS: As far as the support ships are concerned, you said you will have a three inch gun. Is that a three inch 50 or a three inch 70?

Mr. CHARLES: Three inch 50.

Mr. HARKNESS: That will be a gun taken off one of the present destroyer aircraft that are fitted with them, I presume?

Mr. CHARLES: That is right. In fact we have a gun now.

Some hon. MEMBERS: Is that an English gun?

Mr. CHARLES: No, it is not a three inch 70.

The CHAIRMAN: Does that complete your questioning, Mr. Harkness?

Mr. HARKNESS: I have one other matter here in relation to operational support ships. You say they will be generally similar to *Provider* below the main deck, but with appreciable changes to the superstructure. By that you mean it has the same hull, the same propulsion machinery and so forth?

Mr. DAVIS: It has the same hull, Mr. Harkness, and we hope that it will have very similar propulsion machinery. The question of tenders and price will come in here. However, I can certainly say it will be very similar.

Mr. HARKNESS: In other words, there is nothing firm on the propulsion machinery. The only thing that is firm is the hull?

Mr. DAVIS: No. The propulsion machinery will be very similar to that of the *Provider*. Any components of it may, in the long run, turn out to be made by different manufacturers, but we do not know yet.

Mr. HARKNESS: Is that in view of the difficulty you had as far as some of the equipment is concerned?

Mr. DAVIS: No. The propulsion plant has operated extremely well. We are very well satisfied with it.

Mr. HARKNESS: Well in regard to the *Bonaventure* conversion, what are these systems which you are going to simplify which have over the years proved to be excessively demanding in maintenance effort?

Mr. DAVIS: There is a variety of them. I might just run through them very rapidly. Ventilation is perhaps the most important, and in the ventilation we include a good deal of the heating that is associated with it. The de-icing system, which is provided to openings of various kinds to the ship's heating system itself. There is to be some work on the flight deck systems. We have to take out a great deal of weight of various kinds. The ship is particularly heavy at the moment. That is why she has had the reputation, as Admiral Rayner said earlier, of suffering damage at sea from time to time. So we are going to reduce the displacement. We are providing additional air conditioning equipment. There will be an additional evaporator. Fresh water has been a problem. The steering system will be changed to electric hydraulic, and the rest are minor changes. Those are the most significant ones.

Mr. HARKNESS: Would not all of these things perhaps increase maintenance?

Mr. DAVIS: It is not our intention.

Mr. HARKNESS: I know.

Mr. DAVIS: I think it would be almost impossible to increase the amount of maintenance involved.

Mr. HARKNESS: You are adding more evaporators. I would think that by adding such things you would be in danger of increasing your maintenance?

Mr. DAVIS: At least we can replace the evaporators which are now almost 20 years old.

Mr. HELLYER: We are hopeful that some of the maintenance problems will evaporate.

Mr. HARKNESS: I guess I have taken long enough.

Mr. LAMBERT: In comparison with the DDH class ships and the GP frigates, what were the differences in personnel requirements? Were the more sophisticated frigates calling for an increase in personnel over the DDH?

Mr. CHARLES: That is correct. The number of personnel that would be required in the GP frigates would have been larger and would also involve a considerably larger amount of training in the technology involved in the sophisticated missile system.

Mr. LAMBERT: Then is it a fair general statement to say that the GP frigates were a much more sophisticated ship?

Mr. CHARLES: Yes, sir. However, I will qualify that; we say that the DDH has a better sonar ASW surveillance capability than the GP frigate had.

Mr. LAMBERT: Is it also fair to say that the GP frigate had quite a different concept, both as to role and design? In other words, the DDH is a step-up of refinement and design?

Mr. CHARLES: Well, sir, any destroyer we have today, you might say, is a redevelopment of the old destroyer which was designed back in 1904. Every ship is a progression.

Mr. LAMBERT: I suppose you could say the 1965 Cadillac is a progression of the original model-T.

Mr. HELLYER: As a matter of fact, that is an excellent analogy, Mr. Lambert.

Mr. LAMBERT: On the other hand, we know as between the model-T and the 1965 Cadillac that they both belong to the genus of automobiles but these ships belong to the genus of ships. Yet they are conceivably quite different.

Mr. CHARLES: I could answer this way, sir: First of all, a ship is a platform in which you carry fighting equipment and the big question really is how you progress with its ability to fight. Without giving you the classified ranges, the biggest advance in this DDH is, as I said, in its fighting submarine capability and the range of sonar. The area under surveillance varies as the square of the range of the sonar set, therefore as the ranges have increased, the area of surveillance capability has increased considerably, as the minister has pointed out.

Mr. HELLYER: In addition, I think I might add that considering a ship as a carrier for weapon systems to carry out certain roles, a ship which has the advantage of a heavy helicopter has a very great surveillance capability and at the same time the kill capacity increases very dramatically for the weapon system as a whole.

Mr. LAMBERT: In other words, the emphasis has been placed more on the DDH role against the role of the GP frigate. Have any of the features of the GP frigate been imported into these operational support ships? If I recall, some of the ancillaries of the GP frigate seem to have been put into the operational ships which are not common copies of the *Provider*.

Mr. DAVIS: During the development of the general purpose frigate, we conceived an advantage to have been designed, which I somewhat regret we mentioned, in the fact that there was the ability to carry a small number of troops. Now, in that particular broad sense, the operational support ship contributes to a sea lift capability. It does not carry the troops, but it carries equipment, vehicles, and so on. That is the only connection I can think of offhand between the general purpose frigate and the operational support ship.

Mr. LAMBERT: As you said, I do not suppose the *Bonaventure* was ever designed for the role it actually carried out?

Mr. DAVIS: True.

Mr. LAMBERT: Therefore, the ships do have certain capabilities. You have said you mentioned, with some regret, the disclosure that the GP frigate might have as one of its roles the transport of a limited number of armed personnel.

Mr. DAVIS: Lightly armed.

Mr. LAMBERT: That is so. However, on the other hand, is it also conceivable that the operational support ships, if indeed in a crux could do it, the same way as in a crux we have had to put the *Bonaventure* to some rather strange uses.

Mr. CHARLES: You should put bunks in the helicopter hangar and carry people, yes, if the helicopters was not carried on board.

Mr. LAMBERT: I think this has been pretty well covered except for one observation. I think it must be emphasized that the building programs, or the financing at this time of the building programs have been stated to be constant in 1964 dollars. Therefore, by 1971 it is conceivable that some of these units might have climbed up to 15 to 20 per cent higher, taking into account the usual experience of some modification in design, refinement in design, plus the annual creep in the dollar.

Mr. DAVIS: That is a measure to be accepted, yes.

Mr. HARKNESS: On that point, what figure for accelerated costs has been included here? Or has any figure been included?

Mr. DAVIS: No, it has not. That is why I emphasize that these figures are in 1964 dollars.

Mr. HELLYER: What we are doing is making some provision in the over-all program.

Mr. HARKNESS: These figures make no provision for acceleration of the costs which always takes place.

Mr. DAVIS: I wonder if I could amplify that remark a trifle. In the costing program we have made an allowance for changes that we expected to develop during the program. This is included, but we are not allowing here for the inevitable increase due to a rise in the cost of living. That part is not included.

Mr. MACLEAN: Mr. Chairman, most of the questions which I had intended asking have been already answered. However, I would like some further clarification with regard to chart 5, which deals with replenishment vessels on the east coast, and the hypothetical situation which is set up and referred to on page 6 of the brief.

Taking the hypothetical case shown in chart 5 of 18 ships on patrol 1000 miles from Halifax, it will be seen that because of transit time involved, and if no on station refuelling capability is available only 3 ships can be maintained constantly on patrol and these would give an ASW surveillance of the area enclosed by the yellow line. If one operational support ship is available for sea refuelling the number of ships on station would increase to 10 and the area covered would be that enclosed in the blue line if two operational support ships are available 18 ships can be maintained constantly and cover the area within the red line.

Therefore, to make the maximum use of your operational forces, you require only three. Would this be the operational situation?

Mr. CHARLES: Mr. MacLean, as I emphasized, it was a hypothetical case. We were talking about maintaining a surveillance patrol constantly in an area of the east coast of Canada—in this context I am talking of a conceivable type of operation—that you could use either in peace or in war.

Mr. MACLEAN: Well, in this set-up the supply ship, I take it, would be shuffling back and forth between some naval base, Halifax, for example, and the operational area. Would this be a fairly continuous operation? In other words, with one load of fuel and supplies, how long would this maintain the destroyers and aircraft in operation?

Mr. CHARLES: The ships require replenishment approximately every five or six days. Depending on what sort of reserve of fuel you have, and assuming a speed of 15 knots, this means each ship has to be topped off every four or five days. So that one support ship moving from Halifax out to the operating area takes two days; and then it spends a day or a day and a half topping off all the ships. Then it goes back and refuels. If you have one support ship you can maintain 10 ships constantly. You cannot refuel them all, all the time. If you had two, you could top off 18 constantly.

Mr. MACLEAN: In other words, the supply ship would be shuttling back and forth when it was not actually refuelling the ships in the area. What self defence is there, or has any provision been made for an escort for the supply ships? In this calculation, what self defence would this supply ship have? It would seem to me that in a situation of war the other side of the coin would be that the thing to get is the supply ship; it is just as big a concern as getting any of the operational ships. What defence is this supply ship going to have? How are you going to get it back and forth from the operational area?

Mr. CHARLES: You are quite correct that if you are operating the ship in a submarine attack area you have a risk to take. We provide the ship with a torpedo detection sonar. It is quite a fast ship; it can go 20 knots. In addition, it has a helicopter capability. We have told you that we are providing a missile defence system with the operational support ships, and this provides an air defence capability.

Mr. MACLEAN: But it is on that aspect of it that you are placing reliance, contemplating that it would be escorted by some other vessel or some other ship or ships?

Mr. CHARLES: In this type of operation this ship would not normally be escorted.

Mr. McMILLAN: Mr. Chairman, I was interested in the hydrofoil program and building a prototype ship for next year. Do the operation, trials and tests of those scale models indicate that you can operate in the open sea under all weather conditions?

Mr. DAVIS: Yes, Dr. McMillan. We have carried out quite extensive model trials in several sizes, up to a quarter full size. This last has operated in the Bedford Basin and in the approaches to Halifax harbour the progress from the $\frac{1}{25}$ scale to the $\frac{1}{16}$ scale to the quarter scale provides a good basis for the predictions of full size behaviour. All of this data from the beginning to the end was fed into a computer which in turn simulated random seas. The most serious sea state we could get in a model tank was state 6. We are hopeful that this ship will be able to operate certainly in state 5. As I mentioned, we have gone to the quarter full size. There is not much one can do beyond that on the model scale. Up to about 80 per cent of the time you are not in more severe sea conditions than a state 5 sea.

If the vessel is in worse open ocean conditions than those, it cannot fly, but it is an extremely good sea-boat. The foil system acts as an exceptionally good stabilizer, so that it can exist in much worse sea conditions on the rare occasions that those occur. I would like to emphasize here, that this ability to operate in open ocean under all weather conditions is the main criterion for the whole concept.

Mr. McMILLAN: I think Admiral Wilson, who is in charge of Atlantic Command, mentioned this program. Are the Americans in this program as well?

Mr. DAVIS: They have two hydrofoils, one of which is completed and is doing trials; it is about half the size of ours. They have a further boat which

they have started to build, and it is just half as big again as ours. Their foil systems are quite different from ours. We are closely in contact with them, and they with us, in all aspects of the program.

Mr. McMILLAN: What is the comparative cost of nuclear propulsive power and what we are using?

Mr. HELLYER: Conventional.

Mr. DAVIS: This is not too easy to say because when you have nuclear power it gives you ability to do so many other things. Nuclear submarines, if one can use those as an example, are costing twice as much, or perhaps a little more, than conventional submarines, but the difference is not necessarily so great when you come to much larger ships. Nuclear power is certainly becoming cheaper all the time.

Mr. CHARLES: May I mention something with respect to the question of the hydrofoil? We have a series of films which were made on the tests of these models, and I am sure we can make those available to you.

The CHAIRMAN: I am sure this might be something the committee would like to see. Dr. McMillan have you finished?

Mr. McMILLAN: Yes.

Mr. MATHESON: Mr. MacLean anticipated in a sense something that I was going to ask with respect to our operational support ship. It appears that an overwhelming tonnage carried is oil and fuel of one character and another. Nevertheless, there is considerable capacity with respect to fighting equipment. I am thinking of the two army helicopters, 12 armoured personnel carriers, 23 scout cars. What is it contemplated that the operational support ship can do when participating in a battle condition?

Mr. CHARLES: I will answer that question. First of all, in the left hand column is the type of load that the ship would carry in its normal replenishment category. In other words, operating as a replenishment vessel for anti-submarine warfare forces, you will see that practically all replenishment requirements are there including the helicopters which would also have a capability in flying operations. In the right hand column is shown our capability to take military equipment in a peacekeeping role, embark it, transport it and unload it. The actual support they would give to the forces ashore would to a large extent be involved in what you might call a base support. They have good hospital facilities; they have maintenance workshops; they have communication facilities. So we could operate as a base support for troops ashore and indeed carry food for the troops ashore.

Mr. MATHESON: In an army sense—quartermaster stores and this type of work; is that it?

Mr. CHARLES: Yes.

Mr. MATHESON: Does it have anything in the category of fighting capacity? Does it have a gun at all?

Mr. CHARLES: It has one 3 inch gun. In other words, if some local insurgents want to move out and attack it, that is the sort of defence it provides for itself.

Mr. MATHESON: With respect to the hydrofoils, do I anticipate or do I appreciate that in some measure the hydrofoil may be able to take on tasks that cannot be done with the more conventional equipment that fits the rest of the class?

Mr. DAVIS: I think we must say that at the moment our first thought for the hydrofoil is in an antisubmarine role; that is to say, a similar role to the DDH. This vehicle something quite new to us, and once one has it, it is not easy to forecast just in what way you will be able to use it. It has much

in character, for example, with the small fast patrol boats that we saw used a great deal in the war. It may be used in this particular role, but our first thought is to make sure that it works and to evaluate it for ASW work, and then indeed consider other roles that might be appropriate.

The CHAIRMAN: Mr. Winch has one final question, and I believe Mr. Groos has a final question; and then we will adjourn.

Mr. WINCH: I want to take advantage of the fact that we have Commodore Davis with us. I understand, if my information is correct, that you are a naval architect?

Mr. DAVIS: That is so.

Mr. WINCH: May I ask whether you have ever been at sea on the *Annapolis*?

Mr. DAVIS: No, I have not been at sea on the *Annapolis*. I have been at sea on several of her sister ships.

Mr. WINCH: I have had the privilege of spending some six hours on board the *Annapolis*, after which I joined my colleague Mr. Temple on the *Gatineau*. It was quite an experience, I can assure you. If you do not believe me, ask the other members of the committee.

Mr. HELLYER: I agree with you. Like yourself, I was grateful that they did not take that opportunity to drop me.

Mr. WINCH: They had a helicopter to pick me up. My reason for asking this question is that in my approximately six hours on the *Annapolis* I spent about five hours on the bridge. Therefore, I had an opportunity of speaking with a great number of the bridge officers. I am going to say that without exception there were two things which struck me, and this is a newly commissioned ship. One, on the outside bridge there are three levels. The result is that at night they say they do not know how they have not broken their necks.

As an architect, can you tell me if it is necessary to have three different levels and, of course, all completely unlike? On the architectural structure of the *Annapolis*, a bridge officer is absolutely blind as to what is going on behind him. The structure is such that it is absolutely impossible for a bridge officer to know anything that is going on astern except what he can get from a man who has spent 24 hours a day for communication astern and tell the bridge what is going on. I assure you, sir, without exception the officers said something must be wrong and corrections can be made. In view of the fact that we are contemplating reconversion and new ships, and the fact that this is what I maintain is a unanimous view of the bridge officers on the *Annapolis*, is this the sort of thing that will be corrected? These are the criticisms of the men at sea on a ship which was only commissioned not too many weeks ago.

Mr. DAVIS: We certainly take into account as many criticisms of the men at sea as we can. We had 15 of them from both coasts in Ottawa last week, listening to all their complaints, and where possible we will take them into account. I must say on the occasions when I have been at sea it seemed to me that bridge officers spent most of their time inside the bridge and not outside at all. And, as for viewing aft may I say that the *Annapolis* is, in fact, a helicopter carrier. Perhaps we could be shown the slide of the DDH class. Inevitably you will have this large structure of the hangar above the bridge, and it is by no means easy to ensure that you are going to have a clear view aft.

Mr. WINCH: I am now giving you the suggestions made by the different officers.

Mr. DAVIS: Oh, they have many suggestions and they are not ignored.

Mr. WINCH: Is it not possible—

Mr. DAVIS: You mean to extend the bridge wing?

Mr. WINCH: Yes.

Mr. DAVIS: Yes.

Mr. WINCH: I know in port you have a problem. There is no extension of the bridge wing whatsoever on the *Annapolis*.

Mr. DAVIS: Not very much. However, we are not unaware of all these things.

Mr. WINCH: I am giving you what I think are the honest views of the officers and men, and I think that the other members who were with me will confirm these.

Mr. DAVIS: Perhaps I should say a word or two at this time. I agree that they are indeed honest views. Our trouble sometimes is not that we lack criticism but that we have too much of it. We have a plethora of honest views, all of which tend to be different.

Mr. HELLYER: Hear, hear!

Mr. DAVIS: We have tried, as I mentioned twice during my observations, to rationalize these by sending work study teams to observe, to record figures and so on so that we can get a synthesized view of complaints which have some general reality. Whatever they may have told you, we are by no means insensitive to what people want. It is unfortunate we cannot please everybody but we try at least to leave them all about equally dissatisfied.

Mr. WINCH: I am not being impudent at all, but what is the weighting between the man at the desk on land and the man who has to operate at sea?

Mr. DAVIS: It is not a question of weighting; it is a question of philosophy. Our purpose here is a single one; we are to serve those who are at sea and to do it to the best of our ability.

Mr. CHARLES: If I may interrupt, may I say that I have commanded a squadron of this type of ships. I have ridden the *Annapolis* and I have had a considerable amount of experience in handling this type of ship.

Mr. WINCH: Does the captain also express the same views?

Mr. CHARLES: Yes. Only three or four weeks ago these opinions were expressed. We feel that if this is the sort of thing that they really only have to complain about we are not too worried. If you see the bow of the ship and you know where it is going you know the stern has to come after. But, I do appreciate the fact that they feel on occasion they would like to look aft.

Mr. WINCH: Yes, to see if they are being followed.

Mr. CHARLES: Yes, especially if they are in line. We can take steps to improve future designs. But, it is not a serious problem and it has to be kept in perspective in reference to the provision of space for all the equipment in the ops. room down below and aft of it. We have to make the best arrangement in that area because this is where we are actually operating the ship. In ASW operations one must realize that any mistake on that side results in very serious effects. This is a most important aspect of ship control.

The CHAIRMAN: Gentlemen, we are past our hour for adjournment.

Mr. WINCH: Before we adjourn, Mr. Chairman, I think it is most amazing to spend a week among service personnel—and we met plenty of them—and to note not one had a complaint about the food. They all thought it was marvellous. I am sure the other members who were there will verify this.

The CHAIRMAN: I believe Mr. Groos has a final and, I hope, short question before adjournment.

Mr. Groos: Well, Mr. Chairman, I hope it is. I think perhaps it is a question that should be directed to the Minister, although Mr. Davis is here. My question is really one which covers the policy of designing our own vessels in Canada.

As you know, we have had some rather painful experiences in the military in connection with designing our own military equipment. We are endeavouring to design and build our own aircraft, personnel carriers and so on, and we are continuing still with a policy of designing our own vessels. As you realize, this requires a corps of ship designers in Ottawa, a large drawing office in Montreal, and a great number of people. I am not questioning the desirability of having a corps of ship designers or a drawing office but, on the other hand, we are not the only navy that sails the seas and we are not the only ones who build operational support ships or anti-submarine vessels. I have noted that when we try to do these things ourselves it costs a fair amount of money, and if we are going to use purely Canadian equipment we find that we have difficulty with interchangeability of parts. Our ships sail around the world and inevitably they have breakdowns. I am not saying that breakdowns are peculiar to our navy, but things do break down and spare parts are required. This also results in very considerable delay between the time the parts are ordered and fitted to the ship. Also, it has an effect on training. We have different ships with different equipment. Because there is no definite standard of training amongst our allies this affects the production of operating manuals, analyses of how effective the ship is and analyses of different procedures. The whole thing becomes exceedingly complicated. But, we have available to us at the same time because of our good contacts with the United States and the United Kingdom navies, that are doing the same sort of things, designs which we could obtain from them and use in our own ships.

Mr. Hellyer, I know there is another side to this question. I have stated some of the difficulties but I would like to hear from you as to how you justify maintaining this policy of designing our own vessels.

Mr. HELLYER: Mr. Davis can hardly wait to answer this question, but before he does maybe I can say that this problem is not unique to ships. It is one which applies to all military hardware, and the solution is obviously a compromise. We cannot design all our military hardware because the unit requirements are too small and the cost would be prohibitive. As a nation it would mean we would not get sufficient hardware to maintain a viable operational force. So, inevitably, we have to rely to a considerable extent on other people's design capabilities. But, at the same time, in order to have and maintain a highly technical force and to maintain an industry which has a broad capability it is necessary to do some research, development and design work in this country. And, of course, where one draws the line is a matter of judgment. We have benefited from this capability of designing ships. The amount of resources involved in it proportionally is not great; it takes considerably less in resources than, say, designing a highly complicated airplane. I think you could make the same argument in all areas, and one has to decide in which areas design capability is maintained. We have up to the present time, and this seems to be accepted, maintained some ship design capability. Personally, I think it is a good thing to do. I cannot see that the limited savings involved are such that we should give it up. It does increase our costs but, at the same time, it does give us some additional flexibility in that we are able to introduce Canadian concepts, improvements and adapt Canadian equipment, which has an industrial application as well. I am sure Mr. Davis would like to say a few remarks at this time.

Mr. DAVIS: Mr. Chairman and Mr. Hellyer, if I may be permitted I would like to say a few words in this respect. Of course, we have followed this procedure from time to time. The *Labrador* itself was built to an American

design, and so is the Oberon class we are now buying from Britain. But, several matters do arise. For example, with the Oberon class it is rather serious to start changing matters, and this is the case in all submarines. But, we had to alter certain things. The communication equipment had to be changed to make it compatible with North American standards. We had to improve the air-conditioning. We had to improve the de-icing ability. Similarly, if you take an older design, say, the *Charles F. Adams*—

Mr. GROOS: This is not the cartoonist you are speaking of?

Mr. DAVIS: No, it is somewhat old; it would have to have some minor Canadian changes, even in respect of the spirit room, and, of more importance, significant changes in fighting equipment to bring it up to date. But, the real problems arise when you consider building. Suppose we wanted to build in Canada a class of American designed vessels. We are confronted immediately with the procurement problem of all of the equipment that goes in it. There are many thousands of items from main turbines down and, quite properly, emphasis is put upon the fact that this equipment, to the greatest extent possible, must be produced in Canada. Thus we ask for bids and receive a number of tenders. Immediately there must be close scrutiny of all these components to see if they meet the original characteristics and, particularly, to ascertain if they are compatible one with the other. You do not string the components of any propulsion equipment as you would a string of beads. These investigations must be gone into in detail, which involves drawing changes to take care of the difference in physical shape of the individual components. So, in all this you are beginning to see a fairly demanding design effort, initially to assess what you are buying, and then to modify either to bring it up to date or to meet Canadian production policy. All of this inevitably will take time, so you do not save as much time as you might imagine. The design costs for all the programs which we have done since 1950 are about 3 per cent, so they are not particularly significant. Perhaps I might also emphasize that since we are a very small navy, with specific requirements which are our own, it is sometimes not easy to find a precise set of compromises in the designs of someone else. For instance in the case of the O.S.S., the nearest American answer to this, is about two and a half times as big and costs four times as much; they are on a different scale from us. I do not want to emphasize this point but I think a warship is very much a Canadian entity. It is much more representative of our national ethos than is an airplane. It represents a way of life, which is one thing in the destroyers we have designed ourselves and is a very different thing when you come to try it out in a vessel of another nation, such as *Bonaventure*. I am glad the minister is for us. I subscribe to our doing our own design.

Mr. GROOS: Are we going to have another chance to talk about this? I do not wish to delay it now.

The CHAIRMAN: If it is a short question I think we should try and clean it up now.

Mr. GROOS: Yes, it is pretty short. I just wanted to say that by continuing on with this method, we went into the design of the frigate program at about the time that we were building our own design under our own aircraft. As a result we seem to be locked into certain aspects of the shipping industry. I am thinking particularly of an engine. As I understand it—and you can correct me—we thought we were going to put into the DDH vessels the same engine that went into the Restigouche class and the same engine that went into the first destroyer aircraft and it has not produced any greater power. I cannot help but think that you, as a ship constructor, would prefer to have a slightly more flexible engine than the one that you are putting into this generally bigger vessel. We are using this same basic engine and it does seem to

me, Mr. Hellyer, that in the same way that we have been able to share programs with the United States in the aircraft industry and other defence procurements, there is a scope for sharing in programs of ship procurement and I would just like to hear your comment on that.

Mr. HELLYER: There is indeed some sharing. As you know, we are buying Oberons abroad. We are making parts in this country for American ships. We are buying equipment in the United States for our ships. To support an industrial base which will permit this kind of sharing we have to do some original work in this country. Now I cannot answer the question about the engine. I am sure that if better engines are available and if Commodore Davis wants them he will be able to put a bid in for them.

Mr. GROOS: Is there anything in any of these vessels that we are producing that is of our own design, that we are giving or selling to any other navy?

Mr. HELLYER: Yes, the sonar, for example.

Mr. GROOS: But this is not a ship construction or ship design program.

Mr. HELLYER: If the hydrofoils prove successful I have no doubt there will be a market for them in other countries.

Mr. GROOS: We have been in this business for some time. I am just wondering what you have been able to produce.

Mr. DAVIS: You have to remember that it is one thing to talk about equipment; it is another thing to talk about whole ships and whole aircraft and it is becoming increasingly difficult to sell whole ships or whole airplanes to other countries, particularly bigger countries that have the same industrial capability. Therefore, I do not really think it is realistic that in this country we should expect to sell whole ships of our design.

Mr. GROOS: I hope you did not actually think that I meant we should sell whole ships.

Mr. HELLYER: I think there definitely are some things which we have developed and which are of interest but they are usually in the equipment or derivative class, because those are the kind of things that other nations can involve themselves in without running into political obstacles.

Mr. GROOS: And they have nothing to do with our shipbuilding construction.

Mr. DAVIS: I must say that this is not entirely true. There are pieces of equipment, particularly in the replenishment area, in areas of the N.B.C.D., where we have advanced further than other nations. In certain of the components of the propulsion plant that we have initiated ourselves while we have not sold any abroad we have certainly caused an interest in their use. The minister is quite right in saying that the ships we design are meant for us and are not necessarily satisfactory or suitable for other people but we are not doing badly in certain component items. Our first criterion has not been 'is it a good thing to sell'. However we are beginning to find out that some of the things we do are attractive to other people, yes.

The CHAIRMAN: On behalf of the committee I would like to thank our witnesses for, I think, a very interesting presentation. The committee stands adjourned until Tuesday. Thank you.

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HOUSE OF COMMONS
Second Session—Twenty-sixth Parliament
1964-1965



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MINUTES OF PROCEEDINGS AND EVIDENCE

No. 27

THURSDAY, APRIL 1, 1965

Respecting

INTEGRATED RECRUITING ORGANIZATION

Including

FIFTH REPORT TO THE HOUSE

WITNESSES:

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Captain C. R. Knowles, Director of Recruiting, Canadian Forces
Headquarters.

ROGER DUHAMEL, F.R.S.C.
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DEFENCE

Chairman: Mr. David G. Hahn

Vice Chairman: Hon. Marcel Lambert

and Messrs.

Asselin (<i>Notre-Dame-de-Grâce</i>),	Langlois,	Martineau,
Béchar,	Laniel,	Matheson,
Brewin,	Lessard (<i>Lac-Saint-Jean</i>),	McMillan,
Deachman,	Lloyd,	McNulty,
Fane,	MacInnis,	Pilon,
Groos,	MacLean,	Smith,
Harkness,	MacRae,	Temple,
		Winch—24.

(Quorum 13)

E. W. Innes,
Clerk of the Committee.

REPORT TO THE HOUSE

THURSDAY, April 1, 1965

The Special Committee on Defence has the honour to present its

FIFTH REPORT

Your Committee was appointed, by Order of the House of Commons, on May 8, 1964.

Since that time, your Committee has considered many matters relating to Defence, has received evidence thereon from numerous witnesses, and has made a number of progress reports.

Your Committee will not complete its tasks during the present session of Parliament. Under these circumstances this Committee recommends that it be reconstituted at the beginning of the next session of Parliament, and that, as far as possible, the present members of this Committee be appointed thereto.

Your Committee further recommends that the Minutes of Proceedings and Evidence of this Committee be referred, by the House, to the Committee when it is established during the next session.

A copy of this Committee's Minutes of Proceedings and Evidence (*Issues Nos. 1 to 27*) is appended.

Respectfully submitted,

DAVID G. HAHN,
Chairman.

MINUTES OF PROCEEDINGS

THURSDAY, April 1, 1965

(41)

The Special Committee on Defence met at 11:15 a.m. this day. The Chairman, Mr. David G. Hahn, presided.

Members present: Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Fane, Groos, Hahn, Harkness, Lambert, Laniel, Lessard (*Lac-Saint-Jean*), MacLean, MacRae, Matheson, McMillan and Winch—(16).

In attendance: Honourable Paul T. Hellyer, Minister of National Defence; and from the Department of National Defence: Group Captain C. R. Knowles, Director of Recruiting; and Lt. Col. L. E. C. Schmidlin of the Recruiting Directorate, Canadian Forces Headquarters.

The Chairman submitted a draft "Report to the House".

On motion of Mr. Winch, seconded by Mr. Lambert,

Resolved,—That the said draft report be adopted and submitted to the House as the Committee's "Fifth Report" (*For contents of Report—see "Report to House" on previous page*).

On motion of Mr. Lessard (*Lac-Saint-Jean*), seconded by Mr. Winch,

Resolved,—That the "Reports to the House", submitted by this Committee during the present session of Parliament, be assembled in bilingual booklet form; and that 1,500 copies of that booklet be printed.

Group Captain Knowles was called and he read a prepared statement respecting the *Newly Created Integrated Recruiting Organization*.

Agreed,—That Annexes "A", "B", "C" and "D" to the above-mentioned statement, be included in the Committee's printed proceedings.

The Honourable Mr. Hellyer and the witness were questioned on the statement and on related matters.

Mr. Winch, on behalf of the Committee members, thanked the Chairman of the Committee and the Minister for their assistance and co-operation.

At 1:00 p.m. the Committee adjourned to the call of the Chair.

E. W. Innes,
Clerk of the Committee.

Note—The evidence, adduced in French and translated into English, printed in this issue, was recorded by an electronic recording apparatus, pursuant to a recommendation contained in the Seventh Report of the Special Committee on Procedure and Organization, presented and concurred in, on May 20, 1964.

EVIDENCE

THURSDAY, April 1, 1965.
11.15 a.m.

(Text)

The CHAIRMAN: Gentlemen, we have a quorum. Before we hear the briefing this morning there are two procedural items we have to deal with. If the schedule in the House goes according to everyone's hopes and expectations this will be our last meeting this session. Therefore, I would like to submit a "Report to the House." We have a draft report, which has been reviewed by the Steering Subcommittee, that I would like to read to members of the Committee:

"The Special Committee on Defence has the honour to present its

FIFTH REPORT

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Since that time, your Committee has considered many matters relating to Defence, has received evidence thereon from numerous witnesses, and has made a number of progress reports.

Your Committee will not complete its tasks during the present session of Parliament. Under these circumstances this Committee recommends that it be reconstituted at the beginning of the next session of parliament, and that, as far as possible, the present members of this Committee be appointed thereto.

Your Committee further recommends that the Minutes of Proceedings and Evidence of this Committee be referred, by the House, to the Committee when it is established during the next session.

A copy of this Committee's Minutes of Proceedings and Evidence (*Issues Nos. 1 to 27*) is appended."

The real purpose of this report is to put on record a request that this committee be reconstituted next session, with the same members, if possible, as well as to put on record a request that the Minutes of Proceedings and Evidence from this session be referred forward to next session.

Mr. WINCH: Mr. Chairman, I move the adoption of the report.

Mr. LAMBERT: I second the motion.

Motion agreed to.

The CHAIRMAN: There is a further item I would like to deal with at this time. We have had a number of inquiries for printed copies of the reports we have issued this session. Therefore, I would like a motion that the "Reports to the House", submitted by this committee during the present session of parliament, be assembled in bilingual booklet form; and that 1,500 copies of that booklet be printed.

Mr. LESSARD (*Lac-Saint-Jean*): I so move.

Mr. MACLEAN: I second the motion.

Mr. MACRAE: Mr. Chairman, why do we need 1,500 copies? Is there that much demand?

The CHAIRMAN: This is the standard number of copies printed; there are 1,000 in English and 500 in French.

Mr. WINCH: It is a consolidation.

Mr. MACLEAN: Will they be bilingual or will there be 1,000 of one and 500 of the other?

The CHAIRMAN: Bilingual.

Motion agreed to.

The CHAIRMAN: Now, I have a final item. As you know, we have a group of prepared papers, and we already have passed a motion calling for the printing of them. We have been waiting a very long time for one paper which is coming from the Department of National Defence. However, I have been assured that will be forthcoming very quickly and, as soon as it is, all the papers will be printed in booklet form.

The briefing today covers the integrated recruiting organization of the armed forces. The brief will be read by Group Captain C. R. Knowles, Director of Recruiting, Canadian Forces Headquarters. Group Captain Knowles is going to be assisted by Lieutenant Colonel L. E. C. Schmidlin of the Directorate of Recruiting, Canadian Forces Headquarters. I believe all members have copies of the brief.

Will you proceed now, Group Captain Knowles.

Group Captain C. R. KNOWLES (*Director of Recruiting, Canadian Forces Headquarters*): Mr. Chairman, gentlemen; the purpose of our presentation to you today is threefold.

Firstly, to acquaint you with the three recruiting systems as they exist today.

Secondly, to describe to you our considerations and the factors that determined the form of the new Integrated Recruiting System approved by the Minister of National Defence on 8 Mar. 65.

And thirdly, to tell you very briefly of the requirement for recruits as we foresee it over the next two years.

Present Recruiting Systems

1. The systems have been developed over the years to meet specific service requirements. They are based on different recruiting concepts stemming from organizational and functional differences.

2. The Army recruiting system is designed to fulfil Corps requirements. In the Navy and the Air Force, recruiting is done by service, since in their form of weapon employment it would be impractical to recruit to either squadron or ship or other sub-formation.

3. Another fundamental difference between the Services in their approach to recruiting falls in the field of what we might call "selection philosophy". Within the Army, heavy reliance is placed on interviews, which is probably an expansion of the need for the very close personal relationship that develops amongst the fighting elements of the Army. In relation to the Navy and the Air Force, the Army uses a smaller battery of formal tests—on which the Navy and Air Force principally rely. In these latter two Services, relatively little reliance is placed on interview techniques.

4. Again, through organizational and functional differences, command and control of the recruiting units vary between the Services. In the Army, command of the recruiting units is vested in Commands and Areas on a geographical basis, while control is exercised by Canadian Forces Headquarters through these levels of command. This command and control organization was developed in part to meet mobilization needs. In the Navy, command is exercised principally

by Canadian Forces Headquarters, although it is filtered in part through 10 Area Recruiting Officers. Control of the Recruiting Units runs direct from Canadian Forces Headquarters to the Recruiting Units. In the Air Force, both command and control are vested in the recruiting organization at Canadian Forces Headquarters and recruiting units are directly responsive to direction emanating from this organization.

5. A further difference which we may describe as the technique of recruit contact is apparent: In the Army there are a large number of units—Regular and Militia—the latter having regular force advisory staffs associated with them. Over the period of years the Army have developed a system of providing initial recruit contact through these well known local units and have established a recruiting element in conjunction with many of them.

6. The Navy and the Air Force, on the other hand, have a lesser number of recruiting units, for the most part situated in the major centres, and they rely on periodic mobile operations into the small cities and towns to produce the recruit flow. Thus, three systems have developed over the period. The Royal Canadian Navy has 21 recruiting units to recruit approximately 3,000 personnel. The Canadian Army has 47 recruiting units to recruit 5,000 per year. The Royal Canadian Air Force has 17 recruiting units to recruit approximately 4,000 personnel per year. The total personnel employed number 490.

Advertising Support

7. Over the past ten years the recruiting operation has been supported by advertising monies in various amounts and by the appointment of Advertising Agencies. These Agencies have varied in number from three to five and have been Service-oriented in the main.

8. To give you an indication of the variation in recruiting emphasis over the past ten years, Annex D shows the variation in the yearly budget. I should like to point out at this time that certain types of advertising and intensive advertising campaigns have a positive carry-over so that the impact of sharply reduced financial allocation is not normally felt immediately; rather, the effect of advertising—the mental carry-over in the public mind—gradually erodes away and rebuilding the public understanding takes almost as long. Thus, the steady decline in funds has brought us to a point where modest increases are required for the coming year to bolster public consciousness of service in the Canadian Armed Forces.

Commencement of Integration

9. During the two years prior to integration of the Forces, significant accomplishments in the establishment of common standards for these three systems were made. Certain tests were adopted as common; some progress was made in developing common documentation. Seventeen Canadian Armed Forces Recruiting Centres were established in which the three Services work side by side to present a common front to the public. However, up until April 1965—today actually—each Service system was essentially separate. In October 1964 the Headquarters elements of the Navy, Army and Air Force Recruiting Organizations were consolidated in one Directorate under the Chief of Personnel/Director General of Training and Recruiting, and integration of the Headquarters staff came about. However, to ensure that the recruit flow continues uninterrupted, the field organizations retained their separate identities and procedures pending thorough study of the requirements of an integrated system. These studies culminated in the Minister's decision of March 8.

Recruiting Task

10. We can look upon the recruiting operation as one of selling—the recruiter's task is to sell the idea of service to country and the personal career

advantages of undertaking employment in the Canadian Armed Forces. The system that we devise must cater to the best selling practices;

- (a) The recruit must be attracted, and in this regard the establishment of good public relations (PR) and advertising are our principal methods. Advertising may be divided broadly into two areas—National and Local—with National aimed at developing the atmosphere and Local directed to specific requirements. However, it is important to realize that the National and Local campaigns must be closely co-ordinated and controlled in time and content to achieve the greatest dollar value. Additionally, the full impact of advertising can be realized only if the Public is convinced of the need for maintaining Armed Forces and is impressed by the quality and dedication of those Forces.
- (b) the recruit must be contacted by knowledgeable Service personnel without causing the recruit undue inconvenience. We must be prepared to meet him in the vicinity of his home or school or work, at times convenient to him.
- (c) To convert the contact to an enrollee we must be able to determine his employability rapidly. We must convert interest to intention—to signature without delay.
- (d) Once signed on, the recruit needs to be indoctrinated to military life and commence training as soon as possible. He must be kept moving to involve him in his new life and thus reduce the chances of his changing his mind.

Throughout the recruiting process, rapid, steady progression is essential.

11. Thus, the principal aims of the recruiting operation can be defined as follows:

To attract, contact, determine employment suitability, and enrol personnel in the numbers and qualities required, as economically as possible.

Each of the existing three systems has been examined for its ability and efficiency in meeting the aims, and, while each one contains desirable aspects, each has serious shortcomings when viewed against today's competition for manpower.

Correlation Between the Recruiting System and Initial Training

12. Discussion of a recruiting system cannot be divorced from the requirements of initial recruit training. Therefore, in considering the development of a recruiting system, or recruit flow, cognizance must be taken of the initial entry point of the recruit into the Service training structure and what that structure requires in the way of quality. Historically, quality at the recruiting level was reflected by attempting to recruit to job vacancies, but this system did not work; for example, a recruit might want to be enrolled as a carpenter but his ability might be clerical in nature and no amount of training would enable him to assimilate the trade requirements of a carpenter. From this developed the current differing systems of measurement and variations in recruit flow. These measurement systems are still somewhat coarse. The problems inherent in developing a single, more definitive measurement system have been recognized and studies are under way to resolve them. A common selection and classification system is under development and an extensive program of defining job specifications and related quality requirements is well started. Initial examination of both of these programs, and consideration of the aims of integration and unification, predicate a system of recruitment starting from determination of quantities governed by qualities; the development of a measurement system definitive enough to determine employability by the recruit-

ing agent; the establishment of job classification centres for refinement of initial selection into job determination (and, we suggest, for basic training), and ending up with the movement of the recruit into specialized training schools or units.

Organizational Flexibility

13. The need for integration of the recruiting systems is urgent as a first and most logical step in the integration process of the field organization, and as a positive public step towards unification. Although the Command Structure has not yet been established, the recruiting system must be developed now and must be capable of alignment with one of the field components should it become desirable to take this step in the future. In this regard, there are three alternatives, each of which has some merit and each of which has some disadvantages:

- (a) We could align it with a functional command, presumably Training Command because of the direct relationship between recruiting and initial training; or
- (b) We could align it with regional organizations; or
- (c) We could direct control from Canadian Forces Headquarters with recruiting centres and subordinate elements supported administratively and logistically by appropriate Commands.

Organizational Assumptions and Principles

14. Against the above background and broad considerations, the following organizational assumptions and principles develop:

(a) Assumptions

- (1) that the recruiting system will be developed on a completely integrated basis;
- (2) that the recruiting system will be responsible for attracting, contacting, selecting and enrolling all Other Rank recruits for all Services and recommending enrolment for all officer recruits for all Services;
- (3) that the recruiting system should be capable of alignment with a component of the new Command Structure;
- (4) notwithstanding, it may be desirable to control and direct the system from Canadian Forces Headquarters.

(b) Certain principles evolve:

- (1) Command and Control. A single line of command and control is required.
- (2) Flexibility: Flexibility in the application of advertising and personnel resources is required to obtain sufficient quantities and qualities of recruits in relation to geographic areas and changes in economic conditions and Service requirements.
- (3) Economy: The system should contain as few parts as possible consistent with maintaining adequate control to practise economy.
- (4) Simplicity: Simplicity is associated with economy and speed of reaction. A simple system will enable individual Service recruiting personnel to interchange on recruiting tasks; the system will be able to react rapidly to quota adjustments and changes to procedures and policy; the lack of complexity will promote rapidity of induction and decrease the loss of potential recruits.

- (5) Delegation of Authority: To promote efficiency and reduce processing time, authority and responsibility should be delegated to the lowest level commensurate with maintaining adequate control.

Outline of Functional Organization

15. Application of the above assumptions and principles to the recruiting aims produces the centrally controlled functional organization outlined below:

Organization and Function

(a) Canadian Forces Headquarters

- (1) Determination of Canadian Armed Forces quotas (to include the required quantitative and qualitative elements) will be carried out with input to Directorate of Recruiting by Directorate of Personnel Requirements Control and Directorate of Personnel Selection and Research.

(2) Directorate of Recruiting (DR).

- (a) Responsible to the Director General of Training and Recruiting for supervision, control and monitoring of the recruiting operation in the field.
- (b) Directorate of Recruiting will be a small, completely integrated Directorate and will operate on a functional basis.

(c) Functions

- (i) Implementation of recruiting plans and policies for officers and men, with respect to selection procedures covering their entry into the Canadian Armed Forces.
- (ii) Promulgation of recruiting quotas to field recruiting organizations.
- (iii) Promulgation of recruiting instructions.
- (iv) Arrangement for, and centralized control of, commercial advertising, including concept, budget preparation and subsequent expenditure control.

I would like to interject at this point that in previous years we employed five Advertising agencies through each of whom a portion of the total advertising budget was expended. Co-ordination of the advertising programme was difficult and our approach to the whole field of attracting recruits tended to be cellular and rigidly oriented to individual Services. In keeping with the concept of integration, the Minister of National Defence determined that a single advertising agency with a strong bilingual capability would provide more depth of creative and placement effort; would resolve the co-ordination problem and would enable funds to be applied where they were required most without prolonged inter-agency consultation. Effective 1 April, 1965, Vickers and Benson will be this single agency.

- (v) Development of Canadian Armed Forces static recruiting displays for local recruiting use.
- (vi) Preparation and distribution of brochures, career outlines, films, leaflets, posters and displays related to recruiting.
- (vii) Co-ordination with Directorate of Information Services for Advertising concept, counsel and Public Relations exploitation.

(b) Canadian Armed Forces Recruiting Centres

- (1) Single Service Recruiting Units now in existence in major population centres will be replaced by integrated Canadian Armed Forces Recruiting Centres.
- (2) A single Commanding Officer for each Canadian Armed Forces Recruiting Centre will replace the three Service Commanding Officers now exercising single Service command.
- (3) Canadian Armed Forces Recruiting Centres Commanding Officers will be responsible directly to Canadian Forces Headquarters (Directorate of Recruiting).
- (4) Canadian Armed Forces Recruiting Centres will be responsible (within quotas assigned by the Directorate of Recruiting and within a specified geographical area) for the attraction, contacting, processing, selection and enrolment of suitable quality men for the Canadian Armed Forces, and for recommendation for selection of suitable potential officer candidates. These units are the prime contact agency, although the Directorate of Recruiting will be involved from direct enquiries and coupon replies.
- (5) Composition. Each Canadian Armed Forces Recruiting Centre will have a fully integrated staff, common reception area, common Orderly Room and common test rooms. These staffs will be trained (with technical assistance from the Directorate of Personnel Selection and Research) to permit conduct of all selection tests by any Service for any Service.
- (6) Functions.
 - (a) Preparation and insertion in appropriate media, of local advertising material, designed to follow up and exploit National advertising in conformity with Canadian Forces Headquarters policies, entailing one third of the total Advertising budget.
 - (b) Counselling, interviewing and screening of all recruit applicants to determine basic acceptability.
 - (c) Application of appropriate tests to determine suitability for employment in the Canadian Armed Forces.
 - (d) Arrangements for the conduct of recruit medical examinations; medical examinations—to be carried out at nearest Service facility provided no delay is involved to recruit enrolment. When delay results from referral to Surgeon General agency, civilian practitioners certified by the Surgeon General will be used. It is essential that there be no disruption to the documenting, testing and enrolment process.
 - (e) Enrolment of suitable and acceptable Other Rank candidates and despatch to appropriate classification centres.
 - (f) Despatch of basically acceptable officer candidates to designated centre(s) for comprehensive selection process.
 - (g) Conduct of school approach visits, within policy and authority laid down by Canadian Forces Headquarters Directorate of Recruiting.
 - (h) On authorization by Canadian Forces Headquarters Directorate of Recruiting, arrangements for band tours, and visits by high school principals, guidance counsellors, students, press, etc; to selected military establishments.

- (j) Mobile recruiting, as an adjunct to Recruiting Centre operations.
 - (k) Arrangements for placing Canadian Armed Forces static recruiting displays in the Canadian Armed Forces Recruiting Centre local area.
 - (l) Direction of activities of subordinate sub-Canadian Armed Forces Recruiting Centres.
- (c) Sub-Canadian Armed Forces Recruiting Centres
- (1) Within the area of operations of a Canadian Armed Forces Recruiting Centre, Recruiting Units will be redesignated as sub-Canadian Armed Forces Recruiting Centres.
 - (2) Each sub-Canadian Armed Forces Recruiting Centre will be commanded by an officer.
 - (3) Sub-Canadian Armed Forces Recruiting Centres will be responsible to a parent Canadian Armed Forces Recruiting Centre.
 - (4) With appropriate cross-training, each sub-Canadian Armed Forces Recruiting Centre will have recruiting responsibilities parallel to parent Canadian Armed Forces Recruiting Centres.
 - (5) *Composition.* Each sub-Canadian Armed Forces Recruiting Centre will have a small integrated (or cross-trained single service) staff.
 - (6) *Functions.* With suitable cross-training, an Officer-in-Charge, and availability of appropriate medical facilities, each sub-Canadian Armed Forces Recruiting Centre will be able to carry out all the contacting, testing and enrolment functions of a parent Canadian Armed Forces Recruiting Centre (as outlined under *Functions* sub-subpara b. (6) above). To economize on staff the responsibility for co-ordination of school approach, the conduct and administration of band tours, visits of high school principals, guidance counsellors, students, press etc to military establishments; local advertising, and the placing of recruiting displays in the local area, will remain with the parent Canadian Armed Forces Recruiting Centre.

Recommended Field Organization

(a) General

The foregoing paragraph outlined the general organization and functions of the new recruiting system. In adopting this centrally controlled integrated organization, it becomes quite obvious that manpower savings, both in numbers and in ranks, can be achieved. Additionally, there should be administrative savings in mileage and travelling expenses by the avoidance of duplication. While complete details of proposed establishments are not yet available, it is possible to present a general idea of the recommended structure, with a broad cast at savings that will accrue.

(b) Background

- (1) Currently the recruiting network consists of seventeen (17) Canadian Armed Forces Recruiting Centres, thirty-five (35) single service Recruiting Units, and elements of four Command Headquarters, 11 Area Headquarters and 10 Personnel Depots. The staff actively employed on recruiting duties is 155 officers, 178 Senior Non-Commissioned Officers and 105 men and civilians, a total of 438 personnel against an establishment of 490.

- (2) There is not a clear record of the yardsticks used in the development of the size and composition of the three existing field organizations. It appears that they were initially established in strength and location and then adjusted on the basis of personal assessment of work load and production variations over the years. Thus, although the current strengths and locations represent sound structures for the individual service systems, no definitive measure is available on which to base development of a new organization. Accordingly, the study has taken the approach that the requirement for Canadian Armed Forces Recruiting Centres must be related, in each case, to the following factors:

- (a) Population density.
- (b) Geographical size of area.
- (c) Boundaries, natural and political.
- (d) Communications (accessibility).
- (e) Existing facilities.
- (f) Number of sub-Canadian Armed Forces Recruiting Centres to be controlled.
- (g) The state of the local economy.
- (h) Recruiting history.
- (j) Service considerations.
- (k) Ethnic considerations.

I would like to refer you at this moment to annex A which is a typical organizational form of a Canadian Armed Forces Recruiting Centre and a sub-Canadian Armed Forces Recruiting Centre.

The CAFRC shown is the largest of its size, involving some 20 people, and the sub-CAFRC is standard. This approach results in a series of Canadian Armed Forces Recruiting Centres ranging in size, from a maximum of 20 all ranks to a minimum of 11 all ranks. Canadian Armed Forces Recruiting Centres will be supported by a number of sub-Canadian Armed Forces Recruiting Centres, located in smaller centres, with a historical record of good recruit productivity. Sub-Canadian Armed Forces Recruiting Centres are established at a standard two officers and three Other Ranks. (Annex A attached).

At this point I would refer to Annex C.

(c) Numbers and Establishments

- (1) Based on the foregoing criteria, there will be a requirement for 15 Canadian Armed Forces Recruiting Centres and 19 sub-Canadian Armed Forces Recruiting Centres, located as shown on the map attached as Annex B.

There is a map there as well which shows the geographic spread of these various centres. Annex C contains a little more detail, with the numbers of personnel.

This will result in the closure of 18 single service Recruiting Units, and a reduction of Canadian Armed Forces Recruiting Centres from 17 to 15.

(d) Comment

- (1) On the foregoing basis the proposed field organization would require a total of 140 officers, 68 Senior Non-Commissioned Officers and 114 Privates and civilians. This represents a possible saving against establishment of about 33 per cent.

- (e) In completing discussion on the proposed organization, reference is again made to the entry point into the training mill, Job Classification, and Basic or Common-to-all Training Centres. The recruit would be sent to appropriately located centres following enrolment by the Canadian Armed Forces Recruiting Centre, sub-Canadian Armed Forces Recruiting Centre or Mobile Team. (Such centres now exist on a single service basis for Royal Canadian Navy and Royal Canadian Air Force. In the interim, Personnel Depots will continue to be used for the classification function for Army recruits pending development of the integrated centres). Following job classification and basic or common-to-all training, the recruit would be sent to specialized training establishments related to his future career in the Canadian Armed Forces.

Initial Implementation

16. It is necessary to move from the present arrangements to the new recruiting organization in phases which will ensure no hiatus in recruiting activity or effectiveness. The implication of this is that all changes in organization, responsibilities and procedures must be fully understood at the local level, made known in time to permit effective reaction, and in particular that changes do not cause confusion in the minds of the public and potential applicants. A number of the measures required can be put into effect in the approximate period 1 April to 1 October 65. It is anticipated that each of the three phases outlined below would take approximately two months to implement, but this must be considered only as a broad time allocation. Phases may shrink or expand as the operation proceeds.

(a) Phase 1

- (1) Canadian Forces Headquarters (Directorate of Recruiting) assume direct control of all Army Recruiting Units.
- (2) When feasible, Army Manning Staff Officers and subordinate staffs relocate to, and become part of, adjacent Canadian Armed Forces Recruiting Centres.
- (3) With issue of May 65 quotas, Army monthly recruiting quotas will be issued direct to Canadian Armed Forces Recruiting Centres from Canadian Forces Headquarters (Directorate of Recruiting).
- (4) Relocation of Naval Career Counsellors to Canadian Armed Forces Recruiting Centres and redesignation as Recruiting Officers. Naval Mobile Recruiting Units become integral parts of Canadian Armed Forces Recruiting Centres.
- (5) Pending formal establishment action and the development of revised arrangements for administrative support, all personnel will continue to cover existing establishment positions, and administrative support will continue to be provided under current arrangements.
- (6) Canadian Armed Forces Recruiting Centres and sub-Canadian Armed Forces Recruiting Centres to be positioned as indicated in Annex B, an officer named to be in charge of each, and recruiting boundaries adjusted.
- (7) Inception and initial issue of Directorate of Recruiting Instructions.
These instructions will replace Recruiting or Manning Instructions issued by the three Services pre-integration, and will provide the medium for Directorate of Recruiting to transmit

recruiting policy, procedural and administrative instructions, etc. to the Canadian Armed Forces Recruiting Centre Commanding Officers/Officers-in-Charge.

- (8) With effect from 1 April 65, responsibility for the allotment and control of 1965/66 local advertising funds to Canadian Armed Forces Recruiting Centres Commanding Officers/Officers-in-Charge will be assumed by Canadian Forces Headquarters (Directorate of Recruiting).
- (9) Cross training of recruiting staffs is already under way and will be largely completed during Phase I.

(b) Phase II

- (1) Development and issue of Organization Orders for Canadian Armed Forces Recruiting Centres will be completed.
- (2) Physical relocation to Canadian Armed Forces Recruiting Centres, of Personnel Depot staffs involved in recruit processing to enrolment (less classification). Individuals will continue to be charged against Personnel Depot establishment positions pending promulgation of official Canadian Armed Forces Recruiting Centre establishments.
- (3) Implementation of a common selection and enrolment procedure at Canadian Armed Forces Recruiting Centres will be accomplished.
- (4) Establishment of common recruiting reports and returns for use by Canadian Armed Forces Recruiting Centres will be carried out.
- (5) Current local administrative support to Canadian Armed Forces Recruiting Centres and sub-Canadian Armed Forces Recruiting Centres will be maintained during Phase II.

(c) Phase III

- (1) Development and promulgation of revised Canadian Armed Forces Recruiting Centre establishments.
- (2) Posting of all recruiting personnel to pertinent Canadian Armed Forces Recruiting Centre establishment positions.
- (3) Development of final system of pay, medical, dental, vehicular and equipment support, and clear delineation of the extent of local administrative support required.

Future Development

17. Implementation of the three Phases outlined above will permit the new recruiting organization to function. However, there will be numerous refinements required, and these refinements of necessity will require detailed study, close liaison with the other Branches/Divisions/Directorates involved, and with the field organization; and, in addition, in some cases, creation of appropriate integrated policy. Certain of these areas are listed as follows:

- (a) Costing Refinements. There is a need to develop a finite method of costing the recruiting operation when related to individual Canadian Armed Forces Recruiting Centres. Such finite costing would permit measurement of Canadian Armed Forces Recruiting Centre productivity and would provide a control "tool" for determining efficiency, staff composition, support requirements.
- (b) Modernization of Display Facilities. Over the years, and pre-integration, the three services built up a considerable inventory of

display materials and exhibits. In many cases the material is now outdated and hence, non-effective. A complete re-examination of existing display inventories will have to be carried out, and modern, topical and mobile display facilities developed which can be moved from location to location and used time and time again.

- (c) Development of Advertising Techniques and Facilities. This will involve careful examination of the costlier advertising media (radio, television, etc.), and the development of a library of suitable tapes and film clips, to augment and support advertising in the print media.
- (d) Refinements to Establishment of Quotas. Currently, of necessity, quotas contain a relatively coarse measurement of quality, with refinement carried out in classification centres. It is considered that procedures must be developed to refine the element of quality in quotas to permit promulgation to field recruiting organizations of quotas bearing a direct relationship to enrolment tests applied at Canadian Armed Forces Recruiting Centres.
- (e) Development of Common Pay Procedures. Variances in procedures in effect for travel claims, pay advances, privately owned motor car claims, etc., have an impact on Canadian Armed Forces Recruiting Centre operations. Common procedures, when developed, will be of great assistance.
- (f) Recruiting Vehicles.
 - (1) A wide variance now exists in the holding and operation of recruiting vehicles. A common system of vehicular support must be developed with the ultimate aim of providing each Canadian Armed Forces Recruiting Centre with the quota of vehicles required and a common system of authorizing unit personnel to operate the vehicles.
- (g) As Canadian Armed Forces Recruiting Centres/Sub-Canadian Armed Forces Recruiting Centres will be a form of "lodger" units, development of integrated personnel and logistic arrangements will be required.
- (h) Medical Examinations. Development of recruit medical procedures, to the mutual satisfaction of the Surgeon General, and the recruiting organization, to permit competent medical examinations at the lowest enrolment level, with minimum disruption to the applicant in his progression to enrolment is a task to be done.
- (j) Integrated basic (or Common-to-All Services Classification and Training Centres). Ultimately, it may be that there will be a requirement for a number (perhaps up to five) of fully integrated basic (or Common-to-All-Services) classification and training centres, to embrace the existing R.C.N. and R.C.A.F. centres and to assume the classification role now held by CA(R) Personnel Depots. This part of the recruiting organization is also the beginning of the training organization and must be examined in the light of the proposed development of the latter. It is envisaged that plans for the integration of training will have progressed sufficiently by Sep 65 to enable a study regarding integrated classification and training centres to be initiated. It is noted that the personnel now employed on classification work in the Army Personnel Depots would provide a valuable input and assistance to these more comprehensive centres.

Concluding our remarks on the new organization as such:

18. The proposed single line system will effectively meet the aim of a recruiting organization and is designed to serve the integrated Canadian Armed Forces. It can at a later date be aligned with a component of the new Command Structure if deemed appropriate. This system and new organization will result in economies in manpower and operating costs in the order of 168 men or (\$1.1) million annually. The cost savings that we forecast here are primarily concerned with the savings in personnel costs and amount to about \$1,080,000, and a reduction in staff transportation costs of around \$11,000. As the system starts to operate and as we gain further experience, I am quite sure and I am quite convinced that we will find further minor areas of saving on the administrative side. In closing I would like to touch on our third phase of this briefing:

Recruiting Requirements

19. The requirement for recruits in the Canadian Armed Forces remains significant. Unfortunately, the reduction in force strength of 10,000 personnel has generated an impression that the requirement for recruits has abated. Nothing could be farther from the truth.

20. During the next two years, some 24,000 serving personnel will be lost to the Services through normal attrition—the largest part of them having reached retirement age; some through reduction in medical category which precludes re-enrolment; some who decide to take their Service-acquired skills into the booming commercial market of today, and, finally, a small percentage who will be retired prior to normal release age, to re-structure the forces in the light of the new roles and more modern equipments.

21. The 10,000 force reduction will be accomplished from within these personnel, leaving a requirement for 7,000 newly trained personnel per year. It has been our experience that to produce 7,000 trained personnel, we must recruit approximately 9,000 to take care of wastage. Wastage caused by new recruits who are unable to acquire the very high skills needed to maintain our modern complex equipment. Wastage—to a lesser degree—from recruits who prove to be unable to adjust to Service environment through homesickness, incompatibility and other similar causes.

22. To the recruit who has the ability, the desire, to serve his country in a real and vital way, we offer an exciting rewarding career. Opportunity to advance to positions of responsibility is greater than ever before. Variation in employment and the interest that such variation evokes increases steadily with re-equipment of our fighting arms. The shifting world scene opens up new places and ways in which to serve. The standard of excellence required of the military man ensures a camaraderie that is difficult if not impossible to realize elsewhere.

23. The benefits stemming from integration of the Services are real and tangible. It is our task to emphasize this to the public and to impress on our people the fact that service to country can be a way of life—wholesome, satisfying and worthwhile.

24. I solicit your assistance.

The CHAIRMAN: Thank you, Group Captain Knowles. Before we proceed with the questioning, annexations (a), (b), (c) and (d), that are included with the briefing, I believe should be included in the report. Does the committee agree on this?

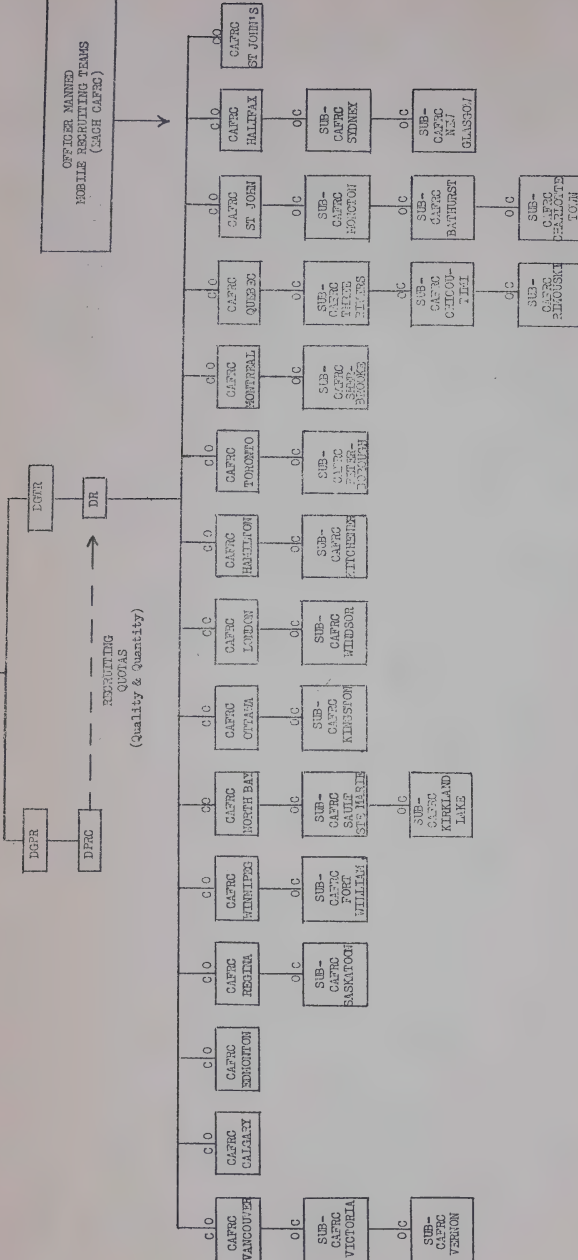
Some hon. MEMBERS: Agreed.

LOCATION AND GEOGRAPHICAL
BOUNDARIES OF
PROPOSED
CAFRCs AND SUB-CAFRCs



ANNEX C

ORGANIZATION AND FUNCTIONS
PROPOSED NEW RECRUITING SYSTEM



HIER OF UNITS

UNIT	PRESENT	PROPOSED
CAFC	17	15
SINGLE SERVICE NO	35	-
SUB CAFC	-	19

NOTE: Re-designation of CAFCs and creation of Sub-CAFCs will result in complete elimination of 18 existing Single Service RUs.

STATUS

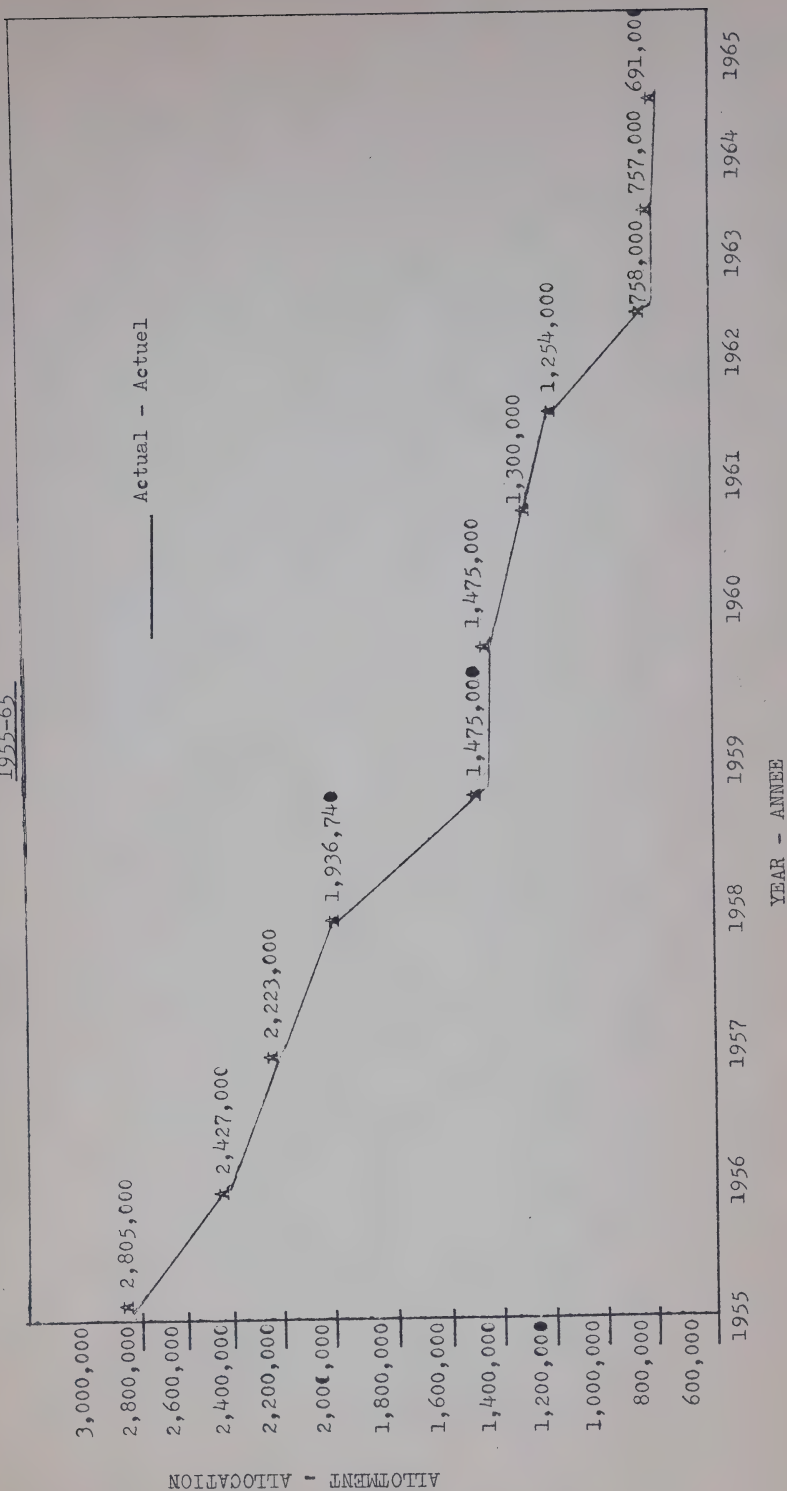
RANK	PRESENT ESTABLISHMENT	PROPOSED ESTABLISHMENT	IN/OUT OF ESTABLISHMENT
MAJ	17	26	-11
CAPT	51	39	+12
LT	92	11	-81
PO/S/S/SGT	190	178	-12
CPL/TE/CIV	110	105	-5
TOTAL	490	438	-52

NOTE: Proposed establishment of 322 all ranks (including civilians) represents the

TRI-SERVICE ADVERTISING COSTS - COUTS DE PUBLICITE POUR LES TROIS SERVICES

ANNEX D
ANNEXION D

1955-65



The CHAIRMAN: We can now proceed with the questioning. I have on my list Mr. Winch, Mr. Lambert, Mr. MacRae and Mr. Deachman. Mr. Winch you are first.

Mr. WINCH: Mr. Chairman, I am certain that we all on this committee appreciate a 14 page presentation on matters respecting defence relevant to the newly created integrated recruiting organization. Sir, there is one phase of this presentation which I am not going to say disturbs me but intrigues me and that is that outside of one sentence in paragraph 20 on page 13, the presentation deals wholly and solely with new recruits. Mr. Chairman, I myself cannot understand a presentation of the requirements of new recruits unless it is related to the policies governing re-enlistments of those already in service. I think this particularly applies to the navy and the air force where, to a considerable extent, our men and officers have to be highly trained in technology and all the new aspects of the navy and air force. If my information is correct, to give an example, it costs over half a million dollars to train a 15 man crew and supporting maintenance men for the operation of one Argus aircraft. Now, Mr. Chairman, I do not see how you can separate the question of new recruitment from the policy of retaining in service or re-enlisting the men who, after their first period of commitment, may want to leave.

Since I have had the privilege of being a member of this committee, in the past year I have had an opportunity to meet with both airmen as well as men in the navy. It is my personal conclusion—and I think I am correct—that many upon whom Canada has now spent fantastic amounts of money for training would re-enlist in the service for a second, third, or fourth term if there were policies, such as for one year's service at sea with separation allowance because one is at sea, or for men having been trained by Canada, a bonus for re-enlistment over a period of years.

I understand, Mr. Chairman, that this program has been tried in the United States. I have received conflicting rumours about how successful it has been. But what I am trying to drive at is this: I fail to see how we can have an understanding of the need for this new recruitment requirement unless it is tied in with a policy of re-enlistment of those whom we have trained, so that they may continue their careers in the service.

I think that this is a matter of policy, and that something along this line might get them to re-enlist. They now have been completely trained at the expense of Canada, and I feel it is of utmost importance, and something which cannot be separated from a program of training new recruitments where you have to spend money and to train.

I may have become rather confused, Mr. Chairman, but I do think this is a most important question. It is a basic and fundamental principle that re-enlistment must be tied in with re-enlistment policies and procedures, in a new recruitment policy.

Might I ask a question of the honourable gentleman who has given this most comprehensive brief? I am glad to see that the minister is here. Perhaps he might care to comment on it.

Hon. PAUL HELLYER (*Minister of National Defence*): You are quite right, the two subjects are related.

Mr. WINCH: There is nothing on re-enlistment here.

Mr. HELLYER: You are right, but the two subjects are related. However the brief this morning had reference only to one of the subjects, that is, to recruiting specifically, and to the manner in which it is carried out. No attempt was made to include policy respecting re-enlistment. If the committee is particularly interested in re-enlistment policy, it would be possible at a later date to have a discussion of that area.

There is one thing you should bear in mind respecting re-enlistment and the complexity of policy dealing with it. I refer to conflicting demands. You quoted figures respecting the Argus crew. I cannot accept your figures offhand. I do not have them. I suspect they are too low. But whether they are low or high, it will serve for the purpose of illustration of the very high cost in training highly technical personnel.

When the question of re-enlistment comes up it is a matter of getting the right people to re-enlist for the right length of time. Here you have conflicting requirements in some areas. In some areas the armed forces want a fairly rapid turnover, while in other areas where skills are higher, and where physical demands are not as rigorous, they want a longer period of service. So you have to have selectivity in respect of re-enlistment policy. This is extremely complicated.

In order to assist us in taking a look at this whole area of manpower policy, and precisely the questions you have raised this morning with respect to manpower, a study group has been set up at the present time under the chairmanship of Major General Anderson. He is looking at a number of fundamental questions including the recommended length of service for personnel in various employments in the armed forces, what are the required levels of training, and what is required of people doing specific jobs in the armed forces.

We expect to have this report later this spring and to use it as a basis for review of fundamental manpower policies, including this very difficult one of re-enlistments and the relationship between short, medium, and permanent commissions for officers and so on.

One further word: I would not want you to get the impression that our re-enlistment experience is not good compared to other forces in the same business. It is excellent. We have our naval re-enlistment rate for example. It has been reported to us to be higher than that of other navies that one can look at including the British, United States, and Australian navies. But it is not good enough, particularly in some skills that we need for long periods of time.

We are now taking steps and will take steps to do something about it. But the experience is still very good comparably, and it has improved in the last year and a half over the previous year and a half.

Mr. WINCH: I appreciate the comments from the minister. I would now like to direct two questions to him based on what he has stated. How can we have presented to us here in this brief and set forth in some detail the requirements of new recruitment which are definitely stated to be for a two year period without their being related to policies for holding in the service those who are now training? And secondly, if I may put my two questions together, you know, as a former member of this committee I had an opportunity of spending a week at sea off Puerto Rico on board *Bonaventure*, where there were 1,364 men and officers.

The captain told me that their average age was 22 years and seven months. These were the men and officers handling the tracker aircraft, the helicopters, and the ship.

These men have been trained at that age with their specific, fantastic responsibilities on all electronic equipment operating the ship, the trackers, and the helicopters. Surely it is of major importance to re-enlist and hold these men. I want to apply this to the recruiting program of brand new personnel that you train and then lose. My interest is in holding the men that Canada trains.

The CHAIRMAN: If I may interject as Chairman before the answer is given, I think we have a brief dealing with the problems of attracting new people

to the services. As the minister stated, the whole question of manpower policy in retaining these people within the service is interesting and one which perhaps the committee should look at. But I suggest that today while we have the people here who can explain the brief dealing with new recruitments, we should limit ourselves to a discussion of that brief, and leave the way open for future discussion of the questions in which you are interested.

Mr. WINCH: That is my very point. How can you separate the two?

Mr. HELLYER: I would like to comment briefly on your first question. It is perfectly legitimate. The estimate of recruits required over a period of time is a ball park estimate.

It cannot be refined down to the nearest person as far as two years in advance for obvious reasons. The reason the estimates will not change very much is that even major policy changes are not likely to affect re-enlistments by an order of magnitude which changes these requirements significantly. In other words, you have to make substantial changes in policy to improve the re-enlistment rate, say, by five percentage points. Although that much improvement would facilitate your problem and certainly assist in making better use of resources in certain areas, it would not affect the requirements substantially enough to concern you from the standpoint of an examination of this briefing.

Mr. WINCH: As the result of my discussion with men and officers I would like to direct a question to the minister. Is any consideration being given to the men in the navy with regard to a separation allowance, and is any consideration being given to a bonus to technicians and others you want to retain on re-enlistment.

Mr. HELLYER: The answer to the first half of your question is yes; this is under current study. The answer to the second part of your question is we have been looking at it, but how you can pay bonuses to the people that happen to be in short supply from moment to moment only, is something I do not know the answer to.

Mr. WINCH: Have you studied the policy of the United States on this matter?

Mr. HELLYER: We have been looking at their policy, yes. I suspect there will be some policy changes in this area in a fairly short length of time. But, if you start to apply re-enlistment bonuses they have to cover wide areas, and you cannot just say we have a shortage in a particular skill today, therefore, we are going to pay those men more to re-enlist because the inevitable effect would be to have shortages either spontaneously or otherwise in another trade very soon, when you would be required to do the same thing on a wider scale. This is a complicated problem.

Mr. WINCH: But you say it is under study?

Mr. HELLYER: Indeed it is.

The CHAIRMAN: Have you a question, Mr. Lambert?

Mr. LAMBERT: Mr. Chairman, Mr. Winch hit upon a point I had noted, as a matter of fact, because paragraphs 19 and 20 are sort of a plea, or there is an implied plea, for stopping up all the bleeding that has been going on in the last year or so as the result of what is indicated in paragraph 19. Mr. Chairman, we need not hide it because we know it does exist. There has been an excessive attrition in both the air force and the navy for a number of reasons. I think what is shown in paragraph 19 is one of the penalties for the ballyhoo which accompanied the announcement of the reduction in savings last year when integration was announced. This shows that every knife has two edges. But, I will leave this question other than to say that, as far as I am concerned, it is highly important and it must be always considered that recruitment includes re-engagement.

Mr. HELLYER: Mr. Lambert, before you leave this I wonder if I could put this matter into perspective, because that is what you are trying to do, and I think it should be done.

The group captain has indicated a requirement of the order of 9,000 recruits in each of the next two years. Last year we took in over 10,000 recruits, and to date this year each month has been an improvement on the same month last year. So, I would not want to give the impression that things are not under reasonable control.

Mr. LAMBERT: No; it may be that you are getting a number of recruits but, on the other hand, you will also admit that the gate at the other end has opened up a little wider and we are losing a lot of good men. I know this from personal experience. I have spoken to men who have cost this country a great deal to train and they would love to carry on in the armed services, but they say this is the end of the road because of certain changes. All right, this is one of the penalties, and let us recognize it as that. I am not faulting it, but I think we should recognize it as one of the penalties. We also should recognize that this is one of the penalties as the result of this slow down requirement. As the paragraph says, there is a slow down in recruiting. So, there has been a falling off in interest because of the announcement of a 10,000 cut in the armed forces. All right, you want to make a saving of 10,000, but you have to be prepared to pay a penalty for it, and I say this is the penalty.

Mr. HELLYER: May I say that we do want your assistance in letting people know we want new recruits but we would not want you to think the situation is worse than it really is, because it is not bad. I am sure, with your assistance, we will not have too much of a problem.

Mr. LAMBERT: The gates are wide open for recruits, but I also want to point out there is a corollary to it, that the gate at the other end has opened up, too. This is a great concern to myself, as well as to Mr. Winch and other members. I hope the means will be found to close that rather unnatural attrition rate.

Mr. HELLYER: I do not want to argue this, but it is a problem of taking people in the right numbers in the right trade; this is complicated because in some areas we have more personnel now than we really can use effectively, and in other areas we are short. What we are trying to do, in bringing in our recruits and keeping people through re-enlistment, is to balance out the force to effectively do the jobs which they have to perform with the least possible manpower, and this will take some time.

Mr. LAMBERT: All right. I would like to go to the footnote to annex C and the matter of savings. There is rather a significant comment there, which says:

Proposed establishment of 322 all ranks (including civilians) represents the minimum operable establishment, and must be filled completely to permit functioning of the recruiting organization.

Having said that, I take it that paragraph 18 and the indicated savings in personnel and moneys are based on a reduction in the present strength or establishment to this paper establishment that is indicated in annex C, and that your forecasts are made on that basis. Does this take into account the effect of pre-transfer leaves, post-transfer leaves, sick leaves and annual leaves?

It seems to me that in the armed service structure all too often we have large gaps when people have been designated for a job but are away for some reason, perhaps undergoing training under some program, or on sick leave, or what have you, and somebody has to double up—quite often a civilian. Does this establishment take into account the margin of non-effective strength?

G/C KNOWLES: Yes, sir, it does.

Mr. LAMBERT: What is your margin of tolerance?

G/C KNOWLES: This establishment will allow for ordinary annual leave and ordinary sickness within the average sick leave period per year. I have not the exact details of that with me, but I believe it runs at about nine and a half days per year. It also takes into account ordinary career courses which are about a month in duration and would work out to about one quarter course per person per year.

Mr. LAMBERT: I see. Therefore, this paper establishment that is now indicated in annex C is not in the same category of effectiveness as is the present establishment. The present paper establishment is 490.

G/C KNOWLES: Yes.

Mr. LAMBERT: The strength is 438.

G/C KNOWLES: Yes.

Mr. LAMBERT: Does that mean the system is operating below par?

G/C KNOWLES: I would not say it is operating below par; it is operating at less than its established strength. One of the reasons is that we have not made an establishment review on the existing system for the last six months, because we were working on the integration of this system. We saw a few soft spots, and we did not replace people who were transferred out when we could keep going for a while. We have done that. We have let it run down a little. It has not hurt the recruitment.

Mr. LAMBERT: Then there would seem to be some fat on the personnel or establishment of the recruiting section of the armed services during the last year.

G/C KNOWLES: There has been a little, sir. If we were to retain the old systems—that is the three systems—running independently I would hesitate to say we could reduce it much below its current strength of 438. However, by combining the three systems we can eliminate a lot of duplication. For instance, at the present time we have in a relatively small centre an officer from the army, an officer from the navy and an officer from the air force; they are necessary to process the recruits, to enroll them, document them and swear them in, and to govern the small outfit. One officer could take on twice the number of recruits who actually come through his door, yet it was necessary to keep them there. Now, by combining, we are able to shrink our staffs quite considerably.

Mr. LAMBERT: I have two more questions.

When is it anticipated that you will be able to relocate these centres? What types of centres do you anticipate? Do you anticipate they will be in the present command locale or in armouries so that you can dispense with some of the rather expensive real estate that you have on lease, shall we say, on more travelled streets in some of the major centres?

G/C KNOWLES: We do not envisage giving up the accommodation on the more travelled streets, sir. Experience in the past has proven that if we are to sell our product, that is our idea of service, we have to make it convenient to the individual we want to get. We have found our efficiency of recruiting rises if we can have our show window on a good street where the traffic is fairly heavy, where facilities for transportation are good so the chap can get to the place and find his way easily, as opposed to other places.

A number of the armouries located in the same cities are in somewhat out of the way places, and it is a little difficult to give directions to people to find them. Once there, the operation of the armoury, as opposed to the operation of the recruiting organization, is such that clashes develop there. The armoury will be closed down at certain times of the day or certain times of the night or certain days of the month. The recruiting operation stays open—

Mr. LAMBERT: Twenty four hours?

G/C KNOWLES: No, not 24 hours. They stay open perhaps until eight o'clock or nine o'clock at night, depending upon the traffic in the particular city. We keep them open six days a week.

Mr. LAMBERT: I have one last observation on the new establishment. It seems that lieutenants have gone out of style, or the rank of lieutenant has gone out of style!

G/C KNOWLES: In actual practice, about half of the captain positions will be filled by lieutenants. However, the purpose of this is that the best recruiting officer is one who has done a tour of operational duties. In the army, by the time he finishes a tour, he has qualified for the captain's rank and is awaiting a vacancy. This is the quality of man we want. If we have a captain's vacancy, then he can move into it. We have the quality we are looking for. When he is promoted he does not have to be moved on somewhere else; we can keep him in this job for which he has been trained.

Mr. MACRAE: Group Captain Knowles, I should have heard, but I did not, what is your exact position now?

G/C KNOWLES: I am director of recruiting.

Mr. MACRAE: That is the title?

G/C KNOWLES: Yes.

Mr. MACRAE: In effect, I believe you said it is today that the whole thing swings into its new orbit.

G/C KNOWLES: Yes, sir.

Mr. MACRAE: Were you responsible yourself for, or did you have a large part yourself in the preparation of this brief?

G/C KNOWLES: Yes, sir.

Mr. MACRAE: It is an excellent job, if I may say so.

My first question, which perhaps should be directed to the minister, arises from page 2 of the brief which deals with the integrated recruiting system. Who comprises the committee, Mr. Hellyer, that actually sat on this? Do you recall? Perhaps Group Captain Knowles could advise you.

Mr. HELLYER: Do you mean who prepared this?

Mr. MACRAE: No, I mean who dealt with the whole broad spectrum of recruiting. Did you have a special committee of national defence which dealt with this matter?

Mr. HELLYER: Perhaps Group Captain Knowles could answer this question.

G/C KNOWLES: We prepared the paper, sir. It was then reviewed by the chief of personnel and his senior officers. I presented it to them. Minor changes were made. We then took it up to the chief of defence staff, and finally to Mr. Hellyer.

Mr. MACRAE: The initial work was done by you and your staff?

G/C KNOWLES: Yes.

Mr. MACRAE: My next question arises from page 5, section 2 of b. of your brief, which states as follows:

—to obtain sufficient quantities and qualities of recruits in relation to geographic areas.

I think I see what is the relationship between quantity and geographical areas, but I am rather intrigued by the relationship between quality and geographic areas. Can you explain what is meant there?

G/C KNOWLES: Yes, sir. Our school systems vary across the country to a greater or lesser degree. Some school systems produce people of a somewhat higher educational standard than others. Some areas are areas of booming

economy; others are areas where the economy is a little depressed. The amount of time that a boy stays in school is dependant to some extent upon the local economy at the time and whether he is needed to go out and work, perhaps part time, to make money to assist the family. His capability for learning the trade requirements is in direct relation to how long he has stayed in school, or how far he has gone in school, and what is the quality when he comes off the top. Since there is a variation in the country, we do have a variation in geography, and hence we have a variation in quality.

Mr. MACRAE: Are you getting more recruits from Atlantic Canada at this time than from the rest of Canada in relation to its population?

G/C KNOWLES: No, sir, not at this time. We were getting a few more a little while back, but then the winter closed in very hard on the prairies and we started to get more from the prairies for a while. This is a reflection of climate and job opportunities.

Mr. MACRAE: My next question is for the minister.

On page 6 we see that, effective from April 1, Vickers and Benson will be the single advertising agency. Mr. Hellyer, is there an amount in the estimates for this?

Mr. HELLYER: Yes, there is.

Mr. MACRAE: Do you recall the amount?

Mr. HELLYER: It was \$736,000.

Mr. MACRAE: In discussing the recruiting on page 7 of the brief you say, "to permit conduct of all selection tests by any service for any service". Earlier on you mentioned that in the army it is done mainly on the basis of a personal interview; that in the navy and air force you rely on various aptitude tests and that there is now some doubt as to their validity. What is to be the principle from now on, are you going to try and combine those two philosophies or are you going to rely more on one system than the other?

G/C KNOWLES: Our personnel recruitment people have been studying for some time the development of a common system. As far as those studies have progressed the common system indicates we will be taking some elements out of each of the three systems, modifying them so that they are compatible, and ending up with a system simpler to administer and more accurate than the one which the three services have had up to the present time. We are trying it as a first round of experiments, without putting it formally into practice but doing it on the R.O.T.P. Army selection program for this Easter period. There are about 40 young men going through it; each one will do the tests for the service to which he has applied, as has been done in the past. Each one will take two elements of the other tests, and from this small control group we will be able to find out if our administrative reasoning has been sound. If it is, we will expand the sample this coming summer. I believe we will get a very good and simple system which will combine the best of all three.

Mr. MACRAE: I have another question. On page 12, in dealing with costing you said, "There is a need to develop a finite method of costing". I take it you have always had that. Would it be done on an annual basis? Would you say that in 1962-63 it cost \$75 for each recruit that was enlisted in the services? Have we had that?

G/C KNOWLES: We have had a degree of costing of that order. We are able to cost such things as the cost of accommodation, the cost of pay and allowances, the cost of travel and capital costs. This has all been done. What we have not done is a cost of the quality of the product we are buying. By this I mean to say we took a sample of 13,750 people, measured them for their learning ability, determined in the employment scale of the services today, how many could be employed. We found that if you set your requirements too high, then you are

starting to throw away too many people just below that scale and hence your costs go up. When I said finite costing, what I was looking for was a method of costing which will tell me how much it will cost me to recruit a man in the upper quarter of our intelligence strata, in the second, third and fourth quarters.

Mr. WINCH: May I ask a supplementary question? What is the cost of your recruiting service per recruit whom you sign up to join the services?

Mr. MACRAE: That was my basic question.

Mr. WINCH: But it was not answered.

Mr. LAMBERT: Surely that would give a false impression.

G/C KNOWLES: The answer would be \$450 per recruit.

Mr. MACRAE: I have one more question. My last question was one which Mr. MacLean asked me to put to you. He had to leave so he asked me to ask you this question. It is very brief. It refers to pages 2 and 10 of your brief. Those are figures which Mr. MacLean could not quite reconcile, nor can I. In paragraph 6 on page 2, if you take a total of the recruiting units there would be 21, 47 and 17, which would be 85. Is that a valid figure up to this point? The navy had 21 units, the army had 47 and the air force had 17.

G/C. KNOWLES: Yes, sir.

Mr. MACRAE: On page 10 the requirement is for 15 Canadian armed forces recruiting centres and 19 subcentres, which would come to 34. This will result in a closure of 18 single service units, and reduce the others from 17 to 15, which will be two more, making 20. If you reduce them to 34, you must start with 54. Mr. MacLean was troubled because 54 and 85 are not quite reconcilable.

G/C KNOWLES: They are running three separate systems. For instance in Toronto and Ottawa there are three recruiting units, one army, one navy and one air force. They all live under one roof. There are 17 of these in the country.

Mr. MACRAE: Thank you, that answers my question.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): Mr. Chairman, I had a question which Mr. Deachman wished to ask. Unfortunately he could not stay. He was interested in asking the minister about the timing of the implementation of this program. I think that question was partly answered when Mr. MacRae was asking his questions. As I understand it, it will go into effect immediately. Is that correct?

G/C KNOWLES: It starts today.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): The personnel will have been taken on, and so on?

Mr. HELLYER: As Group Captain Knowles explained, there are stages. This is a new system which will evolve over a period of time.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): How long?

G/C KNOWLES: In October of this year we should have about 90 per cent of it in operation.

Mr. ASSELIN (*Notre-Dame-de-Grâce*): And when will it finally be in operation?

G/C KNOWLES: I would hope the final stage will be the development of the resolution of the proposal for basic training. When we get chaps from no matter which service they want to join, we teach them how to carry a rifle, how to march and how to take a bath. I would hope this would come about next summer.

Mr. LANIEL: On page 4 of your brief you speak of the principal aims of recruiting. You say, "to attract, contact, determine employment suitability, and enrol personnel in the numbers and qualities required". However, no-

where is there mention of the orientation of a recruit towards one service or another. Will this new set-up allow for this orientation of a recruit towards one service or another even though he might have made a previous selection on his own for different reasons?

G/C KNOWLES: This will take place in the basic training centre which we hope to establish next summer if at all possible. When a chap walks into the recruiting door, in most cases he will have made up his mind as to what colour uniform he wants to wear. He may join up with five or six others and determine his uniform choice. When he goes to the basic training centre, he will be given a uniform of his choice at that time, as we foresee it. He will then go through a battery of classification tests which will determine what job he is best suited to do, what sort of specialized training will be of most benefit to him and to the service concerned. If, during the period when he is doing this, he decides he would like to stay with Jack Smith who is going to the army while he is going to the air force, there will be provision made for him to shift over at that time.

Mr. LANIEL: Would that be influenced, also, by your quota as well as schooling, and so on?

G/C KNOWLES: To a degree.

Mr. LANIEL: This comes to the question of dropouts. If you want to recruit people, you must consider that after a while there will be a certain percentage of dropouts. Part of that percentage of dropouts will be because of the selection and also because of the fact that some people are recruited because they just want to make a try at army life. I do not want you to comment on item 22 where you say the possibilities are greater than ever before, but on the other hand I am wondering whether there is anything in the level of recruiting which would inform the recruit that the army is concerned also about his rehabilitation, or re-adaptation to civilian life after he comes out?

G/C KNOWLES: Yes, sir; that is done now.

Mr. LANIEL: What did you mean by the phrase "greater opportunity"; does that come from the integration of the armed forces and a better selection of personnel?

G/C KNOWLES: I believe the selection of personnel will improve under this system. The equipments we are getting are more complex and the training given is greater. So far as the opportunity of attaining positions of responsibility is concerned, I would like to say that last summer I was given the opportunity of becoming a director of recruiting for the air force; I now have a position of greater responsibility. I think this same principle holds true all the way down through as we combine.

Mr. LANIEL: Would there be any tendency to increase your minimum standards, or decrease them, because at one moment you spoke to Mr. MacRae of losing some personnel because of the high standard at such and such a level.

G/C KNOWLES: I think we probably will increase our intake as a result of a study of job specifications which I mentioned. We are getting a more definitive measure of requirement with relation to individual jobs, and as time goes on I think we will be able to issue quotas to the recruiting organization in terms of measurements of people and the jobs for which they are capable, or for which they show a promise. I mentioned that our measurements are still somewhat coarse; in the refining of these measurements we will be able to employ more people than we do now.

Mr. LANIEL: In respect of the functions you speak of, such as arrangements for band tours, tours to high schools, guidance, and all that, at present has there been very much effort made to reach that student level in an effort to try to interest these students in joining the services?

G/C KNOWLES: Yes, sir. As of today I would say we have given presentations in some 85 per cent of the high schools in the country. We have been to about 90 per cent of the universities. We have had well over 100 band tours. We have arranged for about 30 visits by high school guidance counsellors to the various elements of our military structure. In the next little while, there will be 40 school teachers and guidance counsellors visiting the navy and about 40 press and television people visiting Cold Lake on this sort of program.

Mr. LANIEL: Does this cover the complete area of services' enrolment as far up as R.O.T.P. and thus encourage the furtherance of their studies.

G/C KNOWLES: Our basic approach to the undergraduate high school student is to stay in school; but at the same time we let him know that if he decides to get out of school there are job opportunities available. We encourage him to stay in school and improve his value to himself and to ourselves. The approach taken to the R.O.T.P. is that here is an excellent career ahead of you. We say, this is the way you can get it, it involves your continuing your schooling for quite a period of time, and we will help you do it.

Mr. LANIEL: My last question will be addressed to the minister. On page 6, when speaking of the advertising agency, there is mention of a strong bilingual capability. Here I am wondering whether this will extend outside the area where you have a minimum percentage of, let us say, French or English speaking, or will they generalize from coast to coast? What I have in mind is not a matter of having bilingualism from coast to coast as a necessity, but rather to create an impression with the people of this country concerning the bilingual aspect of the army. At the same time I believe the army should be a good place in which to become bilingual. I think this should get to the people and should get to the people who are at the head of the different services. When I think of the military, I see it as part of the duty of the services to see that the army men or the servicemen receive the opportunity to learn the other language.

Mr. HELLYER: I do not quite understand your relation of this to the advertising agency.

Mr. LANIEL: Is that an indication of a new trend?

Mr. HELLYER: I think we are more aware of the advantages in providing opportunities to learn the two languages. For example, as you know, in the service colleges an increasing emphasis is being put on a two language capability. Commencing this September the English-speaking students of the Royal Military College will be taking one of their courses in the second language. So, I think the trend is there. Was your question related to making known across the country the opportunity which exists in the armed forces to learn a second language?

Mr. LANIEL: What I have in mind is that the minute you are in the service you are aware that you are not in a bilingual unit; there is not a state of mind in the people surrounding you that bilingualism is moving forward. This is more a point I wanted to make than a question.

Mr. HELLYER: I think you will appreciate that in the air force, as far as an operational language is concerned, of necessity this is a single language. This is not true in the army, as you are well aware. The emphasis is on increased opportunity for men and women in the armed forces to obtain a working knowledge in the second language and more facilities are being provided.

Mr. LANIEL: What I meant is it is bilingual to get you in and after that we will forget about it. Thank you.

(Translation)

Mr. LESSARD (Lac-Saint-Jean): I would like to know whether the new recruiting system is also going to provide the necessary candidates for our

Military Colleges. Do our Military Colleges have their own recruiting system or is this new system of recruitment going to provide them with the candidates they need to fill their ranks?

(Text)

G/C KNOWLES: The recruiting system we are developing here will provide all men, all officer candidates and all cadets that are required anywhere within the military forces.

(Translation)

Mr. LESSARD (*Lac-Saint-Jean*): Does it seem to you that, at the present time, there is not enough room in our Military Colleges, if you compare it with applications you receive from young men who are interested. In my own personal experience, it seems that our Military Colleges receive many more applications than they have places available. Am I wrong?

(Text)

G/C KNOWLES: They receive far more applications than there is room available. However, the physical standards for military service are stringent and it is seldom that we completely fill the capacity of the colleges. When I say "completely fill", I am talking in terms of one or two that are left over. We do put a number through the universities who are potentially very, very good, but I do not believe that people are barred from military service through limitations in the size of our military schools.

(Translation)

Mr. LESSARD (*Lac-Saint-Jean*): I would like to put one further question. I noticed that in this new provision of your recruitment centre, in Ontario there are twelve recruiting centres while there are six in the Province of Quebec. I understand that there are a million more souls, but did you reach this decision as a result of experience in the number of recruits who come to you from these two provinces? Are you convinced you are going to be able to obtain the results you want with this number of recruiting centres in Quebec?

(Text)

G/C KNOWLES: Yes, I am fully convinced that we will get the number. Part of the organizational layout of a number of them develops from local geography, mountain ranges, rivers, communications and concentration of population and the number we have set on, I am quite convinced, will give us every bit as good recruiting as we have enjoyed in the past, and we have enjoyed most excellent recruiting in the past.

(Translation)

Mr. LESSARD (*Lac-Saint-Jean*): I note that in the case of Montreal, in particular, there is a large centre. The next, obviously, are Saint-Jean d'Iberville, Ottawa, Three Rivers. In the case of Montreal with about two million inhabitants and one single centre, I feel that that is not sufficient. Would it not have been possible to have secondary centres in Montreal districts?

(Text)

G/C KNOWLES: Montreal is in a rather favourable position. The communications radiating from Montreal are exceptionally good and the centre that we have established is the biggest one in Canada; it is the largest Canadian armed forces recruiting centre that we propose to establish. We believe that the one centre in Montreal city and its subunit will provide most excellent service.

The CHAIRMAN: That completes our list of questioners. It is now one o'clock.

Mr. WINCH: Before we adjourn may I say that in all probability this will be the last meeting of our committee at this session. As one member of the

committee, may I express my appreciation of the privilege, for the second time, of being a member of this committee.

As a result of our meetings at the last session I said at that time that in my estimation this was one of the finest committees of the House of Commons, and that all its members, irrespective of party, accepted very serious responsibility in dealing with most important matters.

I would like to say, Mr. Chairman, I feel that the committee at this session deserves some high marks. I wish to say how much I personally appreciate the courtesy and reasonableness of the Chairman in dealing with the problems of the members, and to say "thanks" to the minister for the time he has taken out to come before us on his own volition, as well as at our request, although not always to come up with all the answers. I appreciate the restriction on information.

It is my hope, having said this, that when the new session commences this same committee, with as nearly as possible the same personnel, may be reconvened in order that we may continue the remainder of our study of this most important matter from a non-political point of view.

The CHAIRMAN: Thank you, Mr. Winch. Except for your remarks about the Chairman, I think we can agree with what you said, and hope that maybe at the next session we may take up our burden once again. Thank you.

G/C KNOWLES: Thank you very much, gentlemen.

MAR 13 1966



HOUSE OF COMMONS
CANADA

REPORTS

of the

SPECIAL COMMITTEE

of the

HOUSE OF COMMONS

on

Matters Relating To

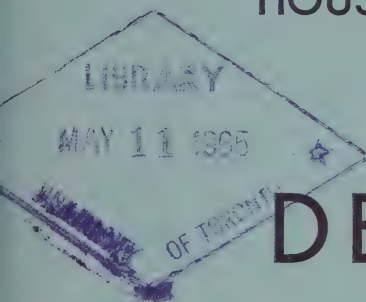
DEFENCE

Presented by

MR. DAVID G. HAHN — *Chairman*

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SESSION 1964-65





HOUSE OF COMMONS
CANADA

REPORTS
of the
SPECIAL COMMITTEE
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SESSION 1964-65

REPORTS
OF THE
COMMISSIONER OF THE
REVENUE
OF CANADA
FOR THE YEAR
1965

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1965

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FIRST REPORT TO THE HOUSE

WEDNESDAY, May 20, 1964.

The Special Committee on Defence has the honour to present its

FIRST REPORT

Your Committee recommends:

1. That it be empowered to print such papers and evidence as may be ordered by the Committee, and that Standing Order 66 be suspended in relation thereto;
2. That it be granted leave to sit while the House is sitting.

Respectfully submitted,

D. G. HAHN,
Chairman.

(*Note*,—Report concurred in on same day).

* * * * *

SECOND REPORT TO THE HOUSE

WEDNESDAY, June 10, 1964.

The Special Committee on Defence has the honour to present its

SECOND REPORT

Your Committee has considered Bill C-90, An Act to amend the National Defence Act, and has agreed to report it without amendment.

A copy of the Committee's Minutes of Proceedings and Evidence relating to this Bill (*Issues Nos. 1 to 6*) is appended.

Respectfully submitted,

DAVID G. HAHN,
Chairman.

* * * * *

THIRD REPORT TO THE HOUSE

WEDNESDAY, June 17, 1964

The Special Committee on Defence has the honour to present the following as its

THIRD REPORT

1. During the Committee's consideration of Bill C-90, evidence was heard respecting the impact of the proposed service reorganization on the manpower requirements of the Services and the Department. Information adduced was to the effect that the manpower requirements of the Services will drop by approximately 10,000 personnel over the next few years. The reduction in civilian strength may be considerably less, but no specific figures were available in this regard.

2. It was noted that the largest part of the reduction in strength would come from normal attrition. It was also recognized that the Services must attain a proper balance of age and skills. To achieve this objective, recruiting will have to be continued and some personnel will have to be involuntarily retired. It was estimated that the latter group might number 2,000 persons, in addition to approximately 500 Aircrew who have already been notified of their impending release.

3. Whilst your Committee generally approved the proposed retirement benefit set out and printed as Appendix «A» to Committee Proceedings No. 2, dated May 28, it further recommends:

- (a) That recruiting be continued to ensure an adequate balance of skills for the maintenance of operational efficiency within the Services.
- (b) That, in those ranks, skills and age groups where reductions become necessary, every effort be made to ascertain those persons who wish to retire. This will assist those persons, who wish to retire, to do so with the benefits to be provided, while at the same time reducing the number of involuntary retirements amongst those who wish to remain in the Services.
- (c) That guidance or counselling be given, on request, to those being retired, so that those who wish to use their benefits for special training or education in civilian institutions will be given every help and encouragement;
- (d) That the matter of displaced civilian employees now being studied by the Civil Service Commission and Treasury Board be quickly resolved, bearing in mind the specialized service rendered and the comparative benefits being provided to Service Personnel who are being involuntarily retired.

A copy of the Committee's Minutes of Proceedings and Evidence, relating to these matters, was tabled with the Committee's Second Report on June 10, 1964, and is recorded as *Appendix No. 3* to the Journals of the House.

Respectfully submitted,

DAVID G. HAHN,
Chairman.

FOURTH REPORT TO THE HOUSE

THURSDAY, October 1, 1964

The Special Committee on Defence has the honour to present its

FOURTH REPORT

CHAPTER 1—SPECIAL COMMITTEE ON DEFENCE

1. On May 8, 1964, the House of Commons appointed the Special Committee on Defence by adopting the following resolution:

Resolved,—That a Special Committee be appointed to continue the consideration of matters relating to Defence begun by the Special Committee at the past Session and to report from time to time its observations and opinions thereon;

That the Committee have power to send for persons, papers and records and to examine witnesses;

That it be empowered to adjourn from place to place;

That the minutes of proceedings and evidence taken by the Special Committee at the past Session be referred to the said Committee and made a part of the records thereof; and

That the Committee consist of 24 members to be designated by the House at a later date, and that Standing Order 67(1) be suspended in relation thereto.

2. On May 14, 1964, the House designated twenty-four members to serve on the Committee as follows:

Ordered,—That the Special Committee on Defence, appointed May 8, 1964, be composed of Messrs. Asselin (*Notre-Dame-de-Grâce*), Béchard, Brewin, Deachman, Fane, Granger, Groos, Hahn, Harkness, Lambert, Langlois, Laniel, Lessard (*Lac-Saint-Jean*), Lloyd, MacLean, (*Queens*), MacRae, Martineau, Matheson, McMillan, Nielsen, Pilon, Smith, Temple and Winch.

Subsequently, Messrs. MacInnis and McNulty were appointed and presently serve on the Committee.

A Steering Subcommittee comprised of Messrs. Hahn (Chairman), Lambert (Vice-Chairman), Langlois, Lessard (*Lac-Saint-Jean*), MacLean, Temple and Winch, was appointed to arrange and plan the work of the Committee.

3. Your Committee held 30 meetings to receive information and opinions on, and to consider matters relating to Defence. Included in this number is four days spent on a visit to Maritime Command, Atlantic, the viewing of a fleet exercise and a visit to SACLANT Headquarters at Norfolk, Virginia. In addition the Committee visited the Canadian Army at Camp Gagetown, New Brunswick, and the Royal Military College at Kingston, Ontario.

4. On May 12, the House of Commons referred to this Committee for consideration and report, Bill C-90, An Act to amend the National Defence Act. Consideration of this Bill was the first order of business for the Committee.

Witnesses heard from the Department of National Defence were: Honourable Paul T. Hellyer, Minister; Honourable Lucien Cardin, Associate Minister; Mr. Elgin B. Armstrong, Deputy Minister; Brigadier W. J. Lawson, Judge Advocate General; and Dr. Jack Hodgson, Assistant Deputy Minister of National Defence (Finance).

Evidence was also heard from the following persons from outside the public service: Brigadier Richard S. Malone, Winnipeg, Manitoba; Air Marshal W. A. Curtis and Major General W. H. S. Macklin, both of Toronto, Ontario.

In its Second Report to the House, dated June 10, 1964, the Committee reported Bill C-90 to the House, without amendment.

5. During consideration of Bill C-90, your Committee heard evidence respecting the impact of the proposed service reorganization on the manpower requirements of the Services. Particular attention was drawn to the problem of personnel who will be involuntarily retired. In this connection, your Committee made certain observations and recommendations in its Third Report to the House, dated June 17, 1964.

6. The Committee spent three days during the last week of July visiting our Maritime Forces on the east coast. One day was spent at SACLANT Headquarters at Norfolk, Virginia. Briefings were conducted by the following:

Rear Admiral J. V. Brock, Maritime Commander; Air Commodore F. S. Carpenter, Deputy Maritime Commander; Commodore E. N. Clarke, Commodore Superintendent Atlantic Coast; Commodore R. L. Hennessy, Commodore Personnel Atlantic; Lt. Cdr. W. T. Marchant; Lt. Cdr. S. S. R. Conway; Captain R. W. Timbrell; Cdr. W. S. Blandy; Captain G. C. Edwards; Lt. Cdr. S. H. Rowell; Lt. Cdr. D. H. Tate; Captain T. C. Pullen; S/L Robert McNair; Mr. W. B. Bailey; Mr. R. Dexter; Lt. Cdr. H. J. Bird; Lt. Cdr. W. A. Byatt; Lt. Cdr. R. F. Strouts; Commodore J. C. Pratt; Cdr. C. G. Pratt; Captain D. L. Macknight; Commander D. H. P. Ryan; Commander A. E. Fox; Commander B. C. Thillaye; Admiral H. P. Smith, U.S. Navy, Supreme Allied Commander Atlantic; Vice-Admiral Charles E. Weakley, U.S. Navy, Commander Anti-Submarine Warfare Force Atlantic; assisted by Vice-Admiral R. D. Hogle, Chief of Staff, SACLANT Headquarters; Cdr. J. B. Carling; Major J. D. Dillon; Cdr. S. Bruland; Cdr. J. J. Doak; Cdr. J. L. Davis; and Captain R. J. Davis.

7. During the Committee's consideration of the Civil Emergency Planning Programme, evidence was received from Honourable Charles M. Drury, Minister of Defence Production, and from Mr. Paul Faguy, Director of Emergency Measures Organization.

8. The operation of the Regular Officer Training Plan was reviewed by the Committee. During this review the Committee received evidence from the Associate Minister of National Defence, Honourable Lucien Cardin, and from the Deputy Minister of National Defence, Mr. Elgin B. Armstrong. Detailed information respecting the various plans was supplied by Commodore H. V. W. Groos, Director of ROTP; Colonel W. R. Sawyer, Vice-Commandant and Director of Studies of Royal Military College; and Commander G. Clark.

The Committee visited Royal Military College, Kingston, Ontario, and received briefings there from Air Commodore L. G. Birchall, Commandant of Royal Military College; Dr. G. F. G. Stanley, Head of the History Department; and, Colonel G. F. Stevenson, Chairman of Army Central Command Interview Board.

9. Your Committee considered the role and functions of the Reserve Forces. Evidence was heard on this subject from the Honourable Lucien Cardin, Associate Minister of National Defence, and from Col. C. P. MacPherson, Director of Militia and Cadets.

Lt. Col. W. R. Learmonth, Chairman of the Conference on Defence Associations and three other members of that body appeared before the Committee and gave evidence respecting Reserve Forces. The Committee also heard testimony from the following:

Brigadier E. R. Suttie, Chairman of the Commission on the Reorganization of the Canadian Army (Militia);

Commodore R. I. Hendy, Chairman of the Ministerial Committee on the Role and Organization of the Royal Canadian Navy; and Group Captain J. W. P. Draper, Chairman of the Ministerial Committee on the Royal Canadian Air Force Auxiliary.

10. The Committee is submitting this Report at this time so that its recommendations will be available to the House of Commons before the Government makes a final decision on certain policy matters that have been studied by the Committee.

11. The Committee has received a series of papers on Defence topics that were ordered last Session. It is the intention of the Committee to study these papers and other matters in the latter months of this Session.

12. It is the intention of the Committee to submit another interim report to cover its full sessional activities just before the end of this Session of Parliament.

CHAPTER II—THE SERVICES

NAVY

13. Your Committee was impressed with the efficiency of our Maritime Forces and with the calibre of the officers and men serving in these forces.

14. Your Committee observed demonstrations of the operation of the HSS-2 Helicopter from a Destroyer Escort. This significant Canadian development which includes the "Bear-Trap" landing system is most impressive. The Committee was pleased to learn of the widespread interest, in this operation, by other countries.

15. The operations of HMCS *Provider* were explained. This ship represents a significant development with its capability of high speed simultaneous replenishment of solid and liquid stores. There have been mechanical and contractual problems with this ship. In the opinion of the Committee, these do not detract from the over-all concept; they should, however, be investigated by the Committee when it studies "procurement practices".

16. During Anti-Aircraft exercises off Bermuda, several failures were experienced with the 3" 70 guns. It was noted that the capability of these weapons against supersonic aircraft was very limited. Considerable doubt was expressed as to the serviceability of this complex weapon.

17. The Committee concludes that, as presently constituted, our Navy and the Maritime Command of the R.C.A.F., constitute a highly developed, specialized Anti-Submarine Warfare (ASW) Force. The R.C.A.F., with its specialized aircraft, is a well trained, well equipped force for this purpose.

18. As older ships with other than ASW capabilities are retired, our Navy will effectively be limited to the specialist ASW role. It will not then be

efficiently equipped to ward off air attacks or fight surface actions. It is noted that at present the Navy has only very limited ability to transport troops and equipment.

19. In the event of a nuclear war, the operation of convoys is unlikely. Nevertheless, the ability to detect and keep under surveillance modern foreign submarine forces in time of peace is a definite deterrent and is therefore a valid task for Canada's Naval Forces.

20. A conventional war or major United Nations action could require convoys of men and material to support it. The use of submarines is not limited to major powers, and we can expect additional countries to acquire them. An ASW Navy is therefore necessary to carry out these roles.

21. The significance of a submarine threat gives rise to deep concern on the costs involved to provide an acceptable level of Anti-Submarine Warfare (ASW) capability, with the present type of equipment. As new and better foreign submarines, particularly nuclear powered and armed, become more general, intensive research and development of more effective ASW forces and tactics are essential and must be undertaken without delay. Your Committee believes that if the Canadian Hydro-Foil Programme is successful it may prove to be a partial answer to this problem.

22. Your Committee is in agreement that Canada must continue an ASW role in concert with her allies.

23. Your Committee welcomes an indication, in the "White Paper", of a trend in our forces to provide land and air forces that would be mobile and complementary to each other, thereby increasing Canada's capabilities in peace-keeping operations. Consideration should be given to broadening the Navy's limited role, so that it can complement the other two forces in this area.

24. A number of ships have been, or soon will be, retired from the fleet. Decisions must be taken on their replacements. The options are to add ships of the ASW type and/or to acquire ships that will provide for a wider variety of tasks. In the opinion of the Committee, Canada cannot afford the high cost of an over-all naval force, capable in all functions, but must continue to specialize.

The Committee supports the recently announced intention of modernizing a number of our ASW vessels. The next priority should be given to the acquisition of shipping to provide logistic support and to meet naval transport requirements of our ground forces. An intensive study should be made, to this end, in conjunction with the Department of Transport. The use of *Bonaventure* for this purpose is costly, less efficient, and removes this important ASW unit from its allocated task. Beyond this, further replacements should augment the ASW forces.

The Committee noted with concern the limited anti-aircraft capability of our existing fleet, and considers that this problem must be thoroughly examined to determine whether, within budget limitations, better anti-aircraft protection may be provided than currently exists.

25. Observing the action of other countries who are entering the nuclear propulsion field, your Committee feels that there could well be great advantage to Canadian industry and to Canadian defence if Canada did likewise. In view of the great costs involved, however, the Committee is of the opinion that at this time action should be limited to joint desirability and feasibility studies by the Department of National Defence, the Department of Industry, and

the Department of Transport and that the Canadian Government should encourage private industry which is interested in the field of nuclear propulsion, by lending support to pilot or experimental programmes studies.

26. Your Committee is aware that naval duties, involving long absences at sea, create particular family problems for naval personnel. While in Halifax, the Committee noted that these morale problems were aggravated by the grossly inadequate housing available to naval personnel in the Port of Halifax region. Your Committee received reports of lower cost and better housing accommodation on the Pacific coast which accentuates the morale and cost-of-living problems on the Atlantic coast.

ARMY

27. Committee members visited Camp Gagetown to observe the summer concentration exercises of the Army and demonstrations of new tactical formations. Briefings were given by Major General R. Rowley, General Officer Commanding, Field Force, Camp Gagetown; Colonel C. D. Simpson, Camp Commandant, Camp Gagetown; Brigadier Norman Wilson-Smith; Lt. Col. John Clarkson; and, Lt. Col. Gordon Sellars. The Committee was impressed with the good appearance and the morale of the forces at Camp Gagetown.

28. The Special Committee on Defence, in its interim report presented during the last session, raised the problem of the lack of tactical mobility of our army. Provision of approximately 480 armoured personnel carriers, in the near future, should ease this problem, but continued efforts must be made to increase airborne tactical mobility.

RECOMMENDATIONS

29. Your Committee recommends:

- (a) that the Hydro-Foil Development Programme be continued in collaboration with our allies and subject to a continuing close scrutiny of the progress and of the economic implications of the programme;
- (b) that an early decision be made on the ship replacement programme, giving priority to the acquisition of logistic support shipping for the Army;
- (c) that consideration be given to the problem of anti-aircraft protection for our fleet;
- (d) that Naval and Department of National Defence officials, together with officials from Central Mortgage and Housing Corporation, continue to meet with the officials of the Halifax-Dartmouth area to arrive at solutions to the Naval housing problem in that area; and
- (e) that joint desirability and feasibility studies on nuclear propulsion, as referred to in paragraph 25, be carried out.

CHAPTER III—CIVIL EMERGENCY PLANNING

30. The prime task of Civil Emergency Planning is to plan now so that appropriate action could be taken in the event of a nuclear attack or major civil disaster. This planning should ensure—

- (a) the continuity of civilian government at all levels;
- (b) the identification and allocation of resources remaining after an attack so that they may be effectively used for the survival of the population and the maintenance of any required military action; and

- (c) that the civilian population is informed and able to make use of any existing protective facilities.

31. In the event of an emergency, it is vital that information on all aspects of the situation be quickly gathered. This information must be rapidly transmitted to those responsible for taking action. A fundamental task therefore of Civil Emergency Planning is to ensure the availability of an effective communication system across the country in the event of an emergency.

32. In an emergency civilian government at all levels would remain responsible for its respective functions. The Emergency Measures Organization (EMO) structure would provide communications, specialist knowledge, and a co-ordinating function, to act in a staff capacity to the various civilian governments. It is noted that EMO organizations are now in operation in all provinces, and that 2,100 out of a total of 4,000 municipalities (approximately 80% of the population) are covered. Efforts should be continued to provide coverage for the remainder of our municipalities.

33. The responsibilities and the authorities of the various levels of government would, of necessity, change with the nature of the emergency. The situation could vary from a local civil disaster to a major nuclear attack involving large portions of the country. It is important that the responsibilities and the authorities of each level of government be defined under these varying conditions. There is an indication that this allocation of responsibility is vaguely defined. There has not been a meeting of the Federal-Provincial Conference on Emergency Measures since December, 1962, and no meeting is currently scheduled. There has been no national exercise for a number of years. The Committee is concerned that this lack of continuing liaison and exercise with the provinces has seriously impaired the validity of the planning. Gaps in levels of responsibility have not been effectively resolved.

34. No attempt is being made to provide blast protection for the population. The short warning time would make evacuation of major population centres a dubious proposition. The cost of an adequate blast shelter programme is so high as to be unjustified. The Committee concurs that the resources that would be required for blast protection of the population are better employed in military defence where they can contribute to the deterrent to war.

It is possible that an effective and economic Anti-ICBM system might be developed. This would require a re-appraisal of the decision not to provide civilian blast protection. It is considered unlikely, however, that the economics either of the Anti-Missile system or of a blast shelter programme will make such programmes possible in the near future.

35. Nuclear fallout could be a major hazard to undamaged parts of the country after a nuclear attack. Provision is being made to detect, and to forecast, such fallout. Reasonable warning time would generally be available in the event of fallout.

Programmes involving mortgage loans, bank loans, and information, have been provided to induce home owners to provide their own fallout protection. These have been failures. Much of the publicity falls on deaf ears. Most of the pamphlets wind up in the waste basket. The public is generally disinterested in times of relative peace. These facts must be recognized.

36. A survey of public buildings is being carried out in Alberta to determine their suitability as fallout shelters. This is being conducted as a pilot study. No facts are available as to the cost of such a survey nor as to the cost of modify-

ing existing buildings to meet shelter requirements. It is possible that the Alberta study will show that fallout protection can be provided at reasonable cost in existing public buildings.

37. The Federal Government has spent an average of 26.7 million dollars per annum on Civil Emergency Planning over the last six years. This has grown from a low of 4.1 million dollars in 1957-58 to a peak of nearly 70 million dollars in 1961-62. For the current fiscal year our expenditure is 19 million dollars. The United Kingdom will spend less per capita at 38.5 million dollars. The United States will spend more per capita at 358 million dollars.

Expenditures on the basic elements of a communication system, a warning system, a central planning function, field co-ordinating agencies, and limited fallout shelter research, would be relatively modest and are necessary to provide a basic security and survival capability. Vast additional expenditures could be made for blast and fallout shelters, massive public education programmes, and other useful activities. The Committee feels that in the scale of priorities, expenditures on Civil Emergency Planning should be limited to those funds required for the basic elements enumerated above.

38. There was a recent accidental triggering of the siren alarm system in Ottawa, Ontario. This false alarm brought out several weaknesses in EMO procedures and administration that must be rectified. A major weakness was that large numbers of people did not know that they should have turned on their radios for further information.

39. Your Committee therefore recommends:

- (a) that a federal-provincial meeting on Emergency Planning be held before the year end. Future meetings should be held at least annually in order to ensure continuing liaison between the two levels of government. Joint planning must be developed, that recognizes clearly the responsibilities of the various governmental levels;
- (b) that EMO national exercises be resumed and conducted on a regular basis;
- (c) that expenditures of funds for the current home shelter programme be discontinued;
- (d) that research be carried forward so that techniques of providing home protection quickly, with materials at hand, may be developed;
- (e) that the study of public fallout shelters in Alberta be completed. An analysis should then be done, based on the data it reveals, as to the cost of providing public fallout shelters across the country and the percentage of population that may be so protected;
- (f) that a decision be made concerning fallout protection. The public will not build shelters. It is financially impossible for the Federal Government to provide fallout shelters for the entire population. Therefore the government must decide, based on the costs revealed by the Alberta survey, whether or not it will provide protection for a portion of the population;
- (g) that public information programmes be instituted to provide basic information. They should be on a periodic basis on television, radio and in the press; and
- (h) that consideration be given to the regular testing of the alarm system in all communities across the country.

CHAPTER IV—REGULAR OFFICER TRAINING PLAN

40. The Services will require approximately 1,500 new officers per year. Evidence given indicates that, in order to maintain a reasonable ratio of university graduate officers, about 450 officers are required each year at this educational level. These figures are being reviewed, but until the study is complete they represent current requirements.

41. The Services must compete with industry and other career options for university graduates. Incentive educational programmes are the only way to meet this competition. The Committee agrees that there is a need for the Regular Officer Training Plan (ROTP) type programme. Evidence indicates that other methods of attracting university graduates into permanent commissions have not been successful.

42. The Department of National Defence has supplied two useful tables which show the attrition rate caused by academic failures at the Canadian Service Colleges (CANSERVCOLS) and the Universities. They also show the attrition rate after graduation, tabulated by Service College, by the University Section, by Academic Discipline, and by Services.

Numbers Exercising Release Option up to 31 Aug. /03

Academic Discipline	Category	Eligible				Exercised Option				Percentage			
		Navy	Army	Air Force	Total	Navy	Army	Air Force	Total	Navy	Army	Air Force	Total
ENGINEERING	Canservcol Aircrew.....	—	—	83	—	—	—	—	—	—	—	—	—
	Non-Flying.....	—	—	59	—	—	—	—	—	—	—	—	—
	Total.....	55	122	142	319	24	21	41	86	44	17	29	27
	University Aircrew.....	—	—	69	—	—	—	—	—	—	—	39	—
	Non-Flying.....	—	—	177	—	—	—	—	—	—	—	53	—
	Total.....	24	77	246	347	18	42	121	181	75	55	49	52
ARTS, SCIENCE AND OTHERS	Total, ROTP.....	79	199	388	666	42	63	162	267	53	32	42	40
	Canservcol Aircrew.....	—	—	69	—	—	—	—	—	—	—	16	—
	Non-Flying.....	—	—	25	—	—	—	—	—	—	—	24	—
	Total.....	27	140	94	261	12	40	17	69	44	29	18	26
	University Aircrew.....	—	—	37	—	—	—	—	—	—	—	19	—
	Non-Flying.....	—	—	48	—	—	—	—	—	—	—	38	—
TOTAL.....	Total.....	21	217	85	323	7	96	25	128	33	44	29	40
	Total, ROTP.....	48	357	179	584	19	136	42	197	40	38	24	34
	Canservcol Aircrew.....	—	—	152	—	—	—	—	—	—	—	22	—
	Non-Flying.....	—	—	84	—	—	—	—	—	—	—	29	—
	Total.....	82	262	236	580	36	61	58	155	44	23	25	27
	University Aircrew.....	—	—	106	—	—	—	—	—	—	—	32	—
TOTAL.....	Non-Flying.....	—	—	225	—	—	—	—	—	—	—	50	—
	Total.....	45	294	331	670	25	138	146	309	56	47	44	46
	Total, ROTP.....	127	556	567	1,250	61	199	204	464	48	36	36	37

43. Your Committee feels that the results achieved at Royal Military College have been very good, being equal to or better than those of comparable institutions in the United States and Britain and compare most favourably with the results achieved in civilian Canadian universities. However, it notes a high rate of drop-out at both Collège Militaire Royal, and at Royal Roads, for which there are various reasons. At C.M.R., initial entry is at junior matriculation level, from all parts of Canada. At this level the drop-out rate is high everywhere. The bilingual nature of studies at C.M.R. also contributes to this higher rate of drop-out, but is only a reflection of the special requirements for bilingualism.

44. Your Committee examined selection procedures in detail, and while generally satisfied with the methods used, it urges more intensive selection of entrants in order to diminish, at both C.M.R. and Royal Roads, the initial rate of drop-out for reasons of academic failure or inability to accept military discipline.

Moreover, there has been insufficient experience with the 'complete degree plan' at R.M.C. since its inception in 1956 to properly evaluate the military career production potential of this plan. Several more years of experience will be necessary.

45. It is recognized that civilian universities have higher service attrition rates. It is considered normal that cadets who attend civilian universities are more likely to leave the service after their mandatory service period. The Committee is concerned about the lower retention rates of Naval Officers, particularly engineering graduates, who have studied at civilian universities.

46. Various cost data respecting the ROTP programme, were presented by witnesses. It is clear that an exact comparison of the costs of CANSERVCOLS and civilian universities was not possible. It is a matter of opinion as to whether CANSERVCOLS are cheaper than civilian universities, for the production of officers, but from the evidence adduced the Committee feels that the difference in cost either way is not significant. The intangible advantage of the CANSERVCOLS then become relatively more important.

47. Your Committee cannot agree with the Glassco Commission view that the academic staff at the CANSERVCOLS should be reduced as to their qualifications and their number. In fact your Committee urges the maintenance of the highest possible standards of this academic staff.

Your Committee noted, with concern, many of the antiquated facilities in use at R.M.C., and cannot agree that the best results are obtainable from laboratories and lecture rooms installed in converted boiler rooms, stables, haylofts, etc. This Committee also feels that the equipment scale is not adequate. While the Committee is pleased to note the recent announcement, concerning the new dormitory at R.M.C., it urges that the remaining deficiencies be remedied.

48. The Committee was generally impressed with the high academic standards, and the high standards of discipline and physical fitness that prevail at the CANSERVCOLS. There is little doubt in the Committee's mind that these educational institutions produce well trained, well motivated, young men as junior officers for our Services.

49. The Committee agrees with the decision to extend mandatory service to four years. Some concern is expressed about the effects of the Student Loan Programme on ROTP enrolment. It is agreed that while both the above factors may make recruiting more difficult, those cadets who are recruited will be more likely to remain in the Service.

50. The Committee also notes that while ROTP graduates who retire after their mandatory service period are a loss to the Service, they, as private citizens, are undoubtedly an asset to the country as a whole.

51. The Committee commends the introduction of the compulsory study and use of French in "non-language subjects" in the curriculum at R.M.C., with a view to developing general bilingualism to working levels in the armed services.

The Committee examined the question of raising C.M.R. to the status of a degree granting institution. It has concluded that, in order to do so, a much greater number of graduates from CANSERVCOLS, would have to be accepted.

RECOMMENDATIONS

52. The Committee therefore recommends:

- (a) that the survey referred to in the evidence be completed so that accurate forecasts can be made of the number of officers who will be required with university degrees;
- (b) that an early determination be made of the long-run proportion of ROTP cadets that are to be trained in CANSERVCOLS, as opposed to Civilian Universities. The Committee feels that the highest proportion possible should be trained in CANSERVCOLS;
- (c) an immediate replacement of antiquated buildings at R.M.C., and that equipment requirements be met;
- (d) a survey be made of the facilities of C.M.R., and Royal Roads to determine any deficiencies with a view to taking remedial action; and
- (e) a more intensive selection of entrants in order to diminish, at both C.M.R. and Royal Roads, the initial rate of drop-out.

CHAPTER V—RESERVE FORCES

53. Prior to the rise of the threat of nuclear warfare in the 1950's, the basis of Canada's peacetime military strength lay in its reserve forces and small regular forces. The chief function of the latter was to supply a training cadre and framework for the reserves.

The threat of nuclear war eliminated the time for mobilization and the necessity arose for large "forces-in-being". Canada established regular forces of 120,000, and to these the reserves became secondary to the point where grave doubts existed as to any valid role for them. In the army, corps training was reduced and survival training, in case of a nuclear attack, was emphasized.

Nuclear warfare is deemed to be less likely because of the nuclear stalemate, and conversely the risk of conventional "brush-fire" war is relatively higher. The regular forces which form Canada's "forces-in-being" will continue but require the manpower support of our reserves. The essential role of the reserves will be to supply that support.

54. In time of crises our expanded forces would require more weapons, materiel and men. The men could be trained during the period of supply of weapons and materiel. To train them would be one of the principal tasks of the experienced officers and other qualified personnel of the reserves.

55. Considerable numbers of additional experienced, well trained personnel are available, from the "out-flow" of permanent force personnel, who are returning to civilian life. Such a pool of experienced military personnel, here-

tofore, has not existed. Unfortunately the potential of this group is greatly diminished because no regular record of their whereabouts, is kept. A form of supplementary reserve list must be kept as it would materially affect the reserve requirements.

56. Emergency Measures Organization plans are based on the use of reserve and regular forces. The survival role is easily learned and is not of itself sufficiently complex to preclude its being taught to all reserve troops in addition to other training. It would be a very costly proposition to provide Reserve Forces solely for survival. The Committee therefore agrees that Reserve Forces should not be maintained solely for survival, but that survival operations should be taught to all troops so that they can, if required, work in that role.

57. The cost of maintaining reserves prior to any reorganization was nearly 55 million dollars per year. Taking into account the low percentage of the defence budget available for equipment for the regular forces, and taking into account the diminished importance of reserve forces while relatively large regular forces are maintained, the Committee feels that every effort should be made to maintain efficient reserve units consistent with budgetary allocations but recognizing that moneys saved by the reduction of personnel and by unit consolidation may be wisely spent for better training and equipment. Cuts totalling 5½ million dollars have been made in the R.C.N.R. and R.C.A.F. Auxiliary budgets. There is no indication of the total savings that may be possible in the militia budget.

58. The role of the Reserves is to provide trained personnel in an emergency. Evidence given by representatives of the three services indicated that many reservists, because of family, business, age, or physical fitness, would not be able to go on Active Service. This negates the main purpose of the Reserves. Consideration must be given to amending the Defence Act so that reservists are committed to limited call-outs. Standards of age and fitness must be such that most reservists are fit for active service. The suggestion was raised that compulsory call-out might affect enlistment in the Reserves, but there seems to be little use in maintaining large forces that are not available for service when needed.

59. The R.C.N.R. and militia obtain their officers largely from the University Naval Training Division (U.N.T.D.) and Canadian Officer Training Corps (C.O.T.C.) programmes. There is evidence that for a variety of reasons many U.N.T.D. and C.O.T.C. graduates fail to join active Reserve units on graduation. This is a wasteful situation and the Committee welcomes the steps that have been taken to provide this training only in those universities that are so located as to make enlistment after graduation likely. Care must be taken in the future to re-assess the location of U.N.T.D. and C.O.T.C. units so that, as reserve units change, they can be assured of an adequate supply of university trained officers.

There should be some obligation on the part of the U.N.T.D. and C.O.T.C. graduates to serve in the Reserves for a stipulated period of time.

60. The Suttie Commission and the Draper Committee presented arguments in favour of an officer at National Defence Headquarters to oversee the operation of their respective branches of the Reserve. The Hendy Committee indicated that the structure of the Commanding Officers' Naval Division (C.O.N.D.) is both unnecessarily costly and organizationally not desirable. There is obviously a need for proper supervision of reserve activities. Your Committee

believes that one senior officer should be appointed at Defence Headquarters, with the sole task of supervising all aspects of the operation of our reserve forces.

61. No steps should be taken to integrate the Reserves prior to Active Force integration. On the other hand, every effort must be made to locate units in common facilities, in order to produce the lowest possible costs of operation. Consideration should be given to savings that might be realized by placing some Active Force recruiting offices in the same quarters as Reserve units.

62. There is ample evidence that administrative procedures for the Reserves are antiquated, cumbersome, restrictive, petty and generally hamper efficient operation. Recommendations in the Hendy and Suttie Reports dealing with such procedures including attestation, pay, stores, accounting, use of military buildings by civilians, and other matters, must be given serious study and the conditions underlying these recommendations must be corrected.

63. There is a common complaint in all three branches of the Reserves about the quality of regular force personnel assigned to Reserve units. While undoubtedly some excellent regular force people are so assigned, the standard must be universally high.

R.C.N.R.

64. There are four major tasks assigned to the R.C.N.R. These consist of provision of personnel for specified functions in time of emergency, the provision of a mobilization base, survival operations, and maintenance of a naval presence in peace time. The Hendy Committee accepted these roles, and this Committee concurs in their validity.

65. The Hendy Committee was concerned about the strength of the R.C.N.R. They reported that while the proposed cut from 4,000 to 2,400 all ranks would meet mobilization plans, these plans did not take into account manning government ships of the Department of Transport and R.C.M.P., nor did they take into account the Reserve fleet. The Hendy Committee, however, did not consider the possible pool of former regular navy personnel who might be available for these purposes. Considering the budgetary limitations that are necessary, this Committee accepts the reduced strength.

It was suggested by the Hendy Committee that savings proposed by them could result in an increased strength of the R.C.N.R. within the budgetary limitations. The Committee concurs that this is desirable if the cost savings are attainable.

66. Evidence indicates an average annual turnover in the R.C.N.R. of 30 percent. In addition it was brought out that a large percentage of R.C.N.R. personnel are under age for Active Service. Your Committee agrees with the Hendy recommendation calling for an increase in the minimum age of the R.C.N.R. There is also agreement that training must be improved to reduce the turnover.

67. The Hendy Report made a number of valid recommendations for the improvement of the administrative efficiency of the R.C.N.R. These should be implemented.

68. The evidence indicates that cost limitations forced the closing down of the R.C.N.R. Air Divisions. The Committee agrees that the cost of providing operational aircraft for the R.C.N.R. is not warranted. It therefore agrees that

the R.C.N.R. Air Divisions should not be reactivated. However, the Committee suggests that arrangements might be made to enable R.C.N.R. personnel to maintain their capability by flying with the existing R.C.N. shore based squadrons.

MILITIA

69. The Government has assigned five main tasks to the militia. These include providing reinforcement of field forces, the formation of logistic and special units that are not provided in peace time, the provision of a training force to support the field force, the manning of certain security guard stations in an emergency, and the survival role. The Committee is of the opinion that the foregoing are the major valid roles for a militia establishment.

70. There was considerable discussion in the Committee concerning the numbers required to fulfill these roles. The Government has indicated a requirement of 30,000 effective militiamen as follows:

(a) Reinforcement of Field Forces	7,000-8,000—officers and men
Special Units for NATO	
commitments	1,000 —officers and men
(b) Training Force to support the	
Field Force	18,000 —officers and men
(c) Internal Security	2,500 —officers and men
(d) National Survival Installations	1,500 —officers and men
	<hr/>
(approximately)	30,000 —officers and men

Your Committee cannot confirm or refute this estimate except to note that the potential requirement for internal security appears to be seriously underestimated. Your Committee also recognizes the fact that those requirements will change in the future, and that regular periodic reviews should be made.

71. Evidence given on the current status of the militia indicated an unsatisfactory situation which demands early corrective action. The average annual turnover is over fifty percent. There are indications that because of age, physical fitness, and minimum of attendance at parades, the average efficiency of the militia is fifty percent. The average ratio of other ranks to officers is only six to one. These are average figures, and include headquarters. While there are some excellent units in the militia, whose record is much better than this average, there are others which are correspondingly much worse.

The Committee recognizes that sentiment and tradition are involved in the maintenance of the militia, but because of the importance of the militia, and an expenditure of about 38 million dollars per year, a low level of efficiency cannot be tolerated.

72. The Government has announced that the present strength of the militia is to be cut, for budgetary reasons, from approximately 45,000 all ranks to approximately 30,000. To achieve the requirement of 30,000 referred to in paragraph 70, this would mean an approximately one hundred percent efficiency rate. Your Committee considers this to be unrealistic and would agree with the contention of the Conference of Defence Associations, that in order to achieve the 30,000 effectives, the militia enrolment, even taking into account an increased efficiency, would have to be considerably higher. It must therefore be recognized that, after the militia is cut to 30,000 all ranks, it will be unable to fulfill its proposed roles.

73. It is evident that there will have to be a reduction in the number of militia units. This reduction should be governed principally by unit efficiency performance, geographical distribution, relationship to existing regular forces, and degree of competition for potential militia personnel.

74. The Suttie Commission produced a number of recommendations. Those dealing with administration, provision of adequate equipment, training, age, fitness requirements, and public relations, are of prime importance. Implementation of these could do a great deal to reduce turnover and bring the militia to the required level of efficiency.

75. Cost savings should result from the reduction in strength and improvements in efficiency of the militia. The Suttie Commission indicated that in order to make the militia effective, some of these savings must be spent on equipment and training. The Committee agrees that this must be done. Little will be gained by cutting costs if the resulting militia is not more effective than at present.

76. Your Committee recognizes that the Department of National Defence has the sole responsibility for effecting changes in the reserve forces. Your Committee further suggests that the Conference of Defence Associations be encouraged to continue in an active advisory capacity to the Minister of National Defence.

R.C.A.F. AUXILIARY

77. The Draper Committee has recommended army air support as a specific role for the Air Force Auxiliary. The aircraft available to the Auxiliary have only a limited capability for an army air support role. The Auxiliary is therefore not able to provide full support for the army over a variety of tasks.

78. The cost of equipping the Auxiliary with up-to-date service aircraft, either for airlift or for tactical support, would be very high. The Committee believes that the priority for this type of equipment must rest with the regular force.

79. The major task therefore of the Auxiliary should be to maintain the flying skills, attained at great cost, of regular force aircrew who have retired from service, but whose age and physical fitness would still qualify them for service. This will ensure the availability of these skills in time of emergency.

80. Secondary tasks for the Auxiliary are its survival role for EMO, its search and rescue operations and its participation, with the army, in training exercises.

81. The Draper Committee suggested that economies of operation could allow more units to fly within the budgetary limitations. No concrete cost figures were given to support this contention. If this suggestion is valid, it would be logical to implement it. Further, consideration might be given to maintaining flying skills by allowing reservists to train with existing R.C.A.F. units, where suitable facilities and equipment exist.

RECOMMENDATIONS

82. Your Committee therefore recommends:

- (a) that a supplementary reserve list be established for Regular and Reserve Force Officers and senior non-commissioned personnel who leave the forces while still young enough to be of service in an emergency. It is suggested that personnel be retained on such a list for a maximum period of ten years;

- (b) that the National Defence Act be amended to provide for the call-out of reserves with provision for protection of employment;
- (c) that fitness standards and age limits for Reserve personnel be prescribed so as to be more closely related to Regular Service requirements;
- (d) that C.O.T.C. and U.N.T.D. programmes carry with them an obligation, on entry, that graduates actively serve in a Reserve unit for three years after graduation, where this is possible.
- (e) that a senior officer be appointed at National Defence Headquarters, whose sole function will be the supervision of the operations of the Reserve Forces;
- (f) that the administrative procedures of the Reserve be reviewed and simplified;
- (g) that only personnel of high calibre be assigned, from the regular forces, to Reserve units;
- (h) that the recommendations of the Hendy Committee dealing with training, administration, and age limits, be implemented;
- (i) that the cost savings indicated by the Hendy Committee be checked. If these savings can be achieved, the strength of the R.C.N.R. be increased;
- (j) that the Naval Reserve Air Squadrons not be put back into operation, but that the Department of National Defence investigate the feasibility of permitting Naval Reserve Air personnel, in Halifax and Esquimalt, to train with the Regular Force Naval Air Squadrons;
- (k) that the number of units in the militia be established in accordance with factors outlined in Paragraph 73 in order to provide a more realistic organization;
- (l) that those recommendations of the Suttie Commission, referred to in Paragraph 74, be implemented as quickly as possible;
- (m) that sufficient funds be provided to equip and train the militia properly; and
- (n) that a detailed cost study be conducted to ascertain the number of R.C.A.F. Auxiliary flying wings that can be provided within the budget available. The maximum number possible should be kept in operation.

83. In order to follow up the fifth chapter, further time is required to study the function and cost of the cadet programmes.

CHAPTER VI—GENERAL

84. A number of topics for further consideration were referred to in the Interim Report of the Special Committee on Defence at the end of the 1963 session. As some of these still remain to be considered, your Committee intends to study them at future meetings.

A copy of the relevant Minutes of Proceedings and Evidence (*Issues Nos. 1 to 27*) is appended.

Respectfully submitted,

DAVID G. HAHN,
Chairman.

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FIFTH REPORT TO THE HOUSE

THURSDAY, April 1, 1965.

The Special Committee on Defence has the honour to present its

FIFTH REPORT

Your Committee was appointed, by Order of the House of Commons, on May 8, 1964.

Since that time, your Committee has considered many matters relating to Defence, has received evidence thereon from numerous witnesses, and has made a number of progress reports.

Your Committee will not complete its tasks during the present session of Parliament. Under these circumstances this Committee recommends that it be reconstituted at the beginning of the next session of Parliament, and that, as far as possible, the present members of this Committee be appointed thereto.

Your Committee further recommends that the Minutes of Proceedings and Evidence of this Committee be referred, by the House, to the Committee when it is established during the next session.

A copy of this Committee's Minutes of Proceedings and Evidence (*Issues Nos. 1 to 27*) is appended.

Respectfully submitted,

DAVID G. HAHN,
Chairman.

CINQUIÈME RAPPORT À LA CHAMBRE

Jeudi 1^{er} avril 1965

Le Comité spécial de la défense a l'honneur de présenter son

CINQUIÈME RAPPORT

Votre Comité a été nommé le 8 mai 1964 par un ordre émanant de la Chambre des communes.

Depuis cette date, votre Comité a étudié plusieurs questions ayant trait à la défense, et il a reçu les témoignages de plusieurs témoins relativement à ces questions, puis il a rédigé plusieurs rapports sur l'avancement de ses travaux. Le Comité ne pourra pas terminer sa tâche durant la présente session. Dans les circonstances, le Comité recommande qu'il soit reconstitué dès l'ouverture de la session suivante du Parlement et que, autant que possible, les membres actuels du Comité y soient nommés.

Votre Comité recommande en outre que les procès-verbaux et témoignages du Comité soient soumis, par la Chambre, au Comité qui sera établi à la prochaine session.

Un exemplaire de chacun des numéros (de 1 à 27) des procès-verbaux et témoignages est ci-annexé.

Respectueusement soumis,

Le président,
DAVID G. HAHN.

- i) Que les possibilités d'économies indiquées par le Comité Hendy soient vérifiées. Si ces économies sont réalisables, l'effectif de la réserve de la Marine royale du Canada devrait être augmenté en conséquence; que les escadrons de la réserve navale ne soient pas remis en opération, mais que le ministère de la Défense nationale examine s'il est possible de permettre à la réserve de l'aéronavale, à Halifax et à Esquimalt, de recevoir son instruction avec les escadrons de l'aéronavale régulière;
- k) Que le nombre des unités de la milice établi d'après les facteurs exposés au paragraphe 73 de façon que l'organisation tienne d'avantage compte de la réalité des choses;
- l) Que les recommandations de la Commission Suttie, dont il est question au paragraphe 74 soient mises en œuvre le plus tôt possible;
- m) Que des crédits suffisants soient prévus pour permettre d'équiper et de former convenablement la milice;
- n) Qu'une étude détaillée soit faite des dépenses pour assurer le nombre d'escadrons aériennes auxiliaires que l'ARCC peut maintenir en service grâce aux fonds disponibles. Il faudrait en maintenir le plus grand nombre possible en activité.

83. Pour donner suite au cinquième chapitre, il faudrait pouvoir consacrer plus de temps à étudier l'application et le coût des programmes relatifs aux cadets.

CHAPITRE VI—GÉNÉRALITÉS

84. Un certain nombre d'autres sujets restés à l'étude sont mentionnés dans le rapport intermédiaire du Comité spécial de la défense, à la fin de la session de 1963. Vu que certaines de ces questions restent encore à étudier, le Comité se propose de le faire au cours de ses prochaines séances.

Un exemplaire des procès-verbaux et témoignages s'y rapportant (*fascicules nos 1 à 17*) est annexé au présent rapport.

Respectueusement soumis,

Le président,
DAVID G. HAHN.

* * * * *

dont dispose la réserve auxiliaire ne lui permettent pas de seconder pleinement ces forces. La réserve auxiliaire ne peut pas apporter un appui total à l'Armée dans le cas de diverses tâches.

78. Il en coûterait très cher de doter la réserve auxiliaire d'avions militaires du dernier modèle, destinés au transport aérien ou à l'appui tactique. Le Comité estime que la priorité en ce qui a trait à l'équipement de ce genre doit revenir à la force régulière.

79. La réserve auxiliaire aurait donc pour mission principale de maintenir la compétence, atteinte à grand prix, du personnel navigant de la force régulière qui a quitté le service, mais qui, à cause de l'âge et des aptitudes physiques, serait encore apte à servir. Ainsi, en cas d'urgence, il serait possible d'avoir recours à ces compétences.

80. Les fonctions secondaires de la réserve auxiliaire consistent à exercer un rôle dans les opérations de survie pour le compte de l'OMU, à effectuer des opérations de recherches et de sauvetage, et, de concert avec l'Armée, à participer aux exercices d'instruction.

81. Le Comité Draper est d'avis que les économies réalisées par suite des réductions des frais de fonctionnement permettraient, compte tenu des restrictions budgétaires, à un plus grand nombre d'unités de pratiquer les exercices de vol. Il n'a fourni aucun chiffre appuyant cette affirmation. Si cet avis est exact, il serait logique de le mettre en pratique. En outre, on devrait songer à garder ceux qui ont des aptitudes pour le vol en permettant aux membres de la réserve de recevoir une formation dans les unités de réserve de l'ARC, là où existent des installations et du matériel satisfaisants.

Recommandations

82. Le Comité recommande donc:

- a) Qu'on établisse une liste supplémentaire de la réserve, où l'on inscrite les noms des officiers des forces régulières et de réserve, et des sous-officiers d'expérience qui abandonnent les forces armées lorsqu'ils sont encore assez jeunes pour servir en cas d'urgence. Il est proposé de faire les inscriptions sur cette liste pour une période maximum de dix ans;
- b) Que la loi sur la défense nationale soit modifiée de façon à prévoir l'appel des forces de réserve tout en leur assurant la sécurité de l'emploi;
- c) Que des normes d'aptitude et des limites d'âge soient prescrites pour le personnel de la réserve de manière à correspondre de plus près aux exigences du service régulier;
- d) Que les programmes du CEOC et de l'UNTD comportent l'obligation de la part des recrues de s'engager à faire trois ans de service actif dans une unité de réserve, quand c'est possible, après l'obtention de leur diplôme universitaire;
- e) Que soit nommé au quartier général de la défense nationale un officier supérieur qui aura pour seule fonction de surveiller l'activité des forces de réserve;
- f) Que les méthodes administratives des forces de réserve soient revues et simplifiées;
- g) Que seul du personnel de qualité supérieure et provenant des forces régulières soit affecté aux unités de réserve;
- h) Que l'on donne suite aux recommandations du Comité Hendy relativement à l'instruction, à l'administration et aux limites d'âge;

Le Comité ne peut ni accepter ni rejeter ce chiffre approximatif; toutefois, il signale que les besoins possibles en fait de sécurité interne semblent avoir été gravement sous-estimés. Le Comité reconnaît également que les besoins changeront et qu'il faudra faire des révisions périodiques.

71. D'après les témoignages recueillis, la situation dans laquelle se trouve actuellement la Milice n'est pas satisfaisante; il faudrait y remédier bientôt. La moyenne du roulement annuel dépasse 50 p. 100. Il semble qu'en raison de l'âge, de l'aptitude physique et du manque d'assiduité aux exercices, l'efficacité moyenne de la Milice soit de 50 p. 100. La proportion moyenne des hommes de troupe par rapport aux officiers n'est que de 6 à 1. Ces chiffres, qui comprennent le quartier général, sont approximatifs. Bien que la Milice compte d'excellentes unités, dont la réputation dépasse de beaucoup la moyenne, il est bien loin d'être ainsi dans le cas de certaines autres.

Le Comité reconnaît que le maintien de la Milice est une affaire de sentiment et de tradition; mais, étant donné son importance et la dépense de 38 millions de dollars qu'elle entraîne chaque année, on ne peut y tolérer un faible niveau d'efficacité.

72. Le gouvernement a annoncé que, pour des raisons d'ordre budgétaire, l'effectif actuel de la Milice tomberait de 45,000 militaires de tous grades à environ 30,000. Pour compter seulement 30,000 hommes (voir l'alinéa 70) il faudrait qu'elle soit efficace dans une proportion d'à peu près 100 p. 100. Le Comité estime que ce serait chimérique. Il est donc de l'avis de la Conférence des associations de la défense, savoir qu'un effectif à 30,000 ne saurait suffire, à moins que l'enrôlement dans la Milice, même si l'on tient compte d'une plus grande efficacité, ne s'accroisse. Par conséquent, il faut admettre que, une fois qu'elle aura été réduite à 30,000 militaires de tous grades, la Milice ne sera plus en mesure de s'acquitter de toutes ses fonctions proposées.

73. Il est manifeste qu'il faudra réduire le nombre des unités de la Milice. Cette réduction doit s'effectuer en fonction surtout de l'efficacité des unités, de leur répartition géographique, de leur rapport avec les forces régulières actuelles et de la mesure dans laquelle il y aura concurrence en vue de faire partie de la Milice.

74. La Commission Suttie a formulé un certain nombre de recommandations. Celles qui ont trait à l'administration, à la fourniture de matériel convenable, à l'âge, aux conditions requises quant à la santé et aux relations extérieures revêtent une importance capitale. Leur mise en pratique aiderait considérablement à réduire le roulement du personnel et à hausser le rendement de la Milice au niveau requis.

75. La réduction de l'effectif et l'amélioration de l'efficacité de la Milice devraient permettre de réaliser des économies. La Commission Suttie a indiqué qu'afin de rendre la Milice efficace, il faudrait affecter certaines des économies réalisées à l'achat de matériel et à l'instruction. Le Comité convient que ces mesures devraient être prises. A quoi servirait-il de comprimer les dépenses si le rendement de l'effectif réduit n'est pas meilleur que celui de l'effectif actuel.

76. Le Comité reconnaît que le ministère de la Défense nationale doit assumer seul la responsabilité des modifications à faire dans le cas des réserves. Le Comité propose aussi que la Conférence des associations de la défense soit encouragée à continuer d'exercer un rôle consultatif actif auprès du ministre de la Défense nationale.

Réserve auxiliaire de l'ARC

77. Le Comité Draper a recommandé que la mission spéciale de la réserve auxiliaire de l'ARC soit d'appuyer les forces terrestres et aériennes. Les avions

65. Le Comité Hendy s'est inquiété au sujet de l'effectif des réserves de la Marine. Il estime que la réduction proposée de 4000 à 2400, pour tous les grades, répondrait aux plans de mobilisation, mais qu'on ne tient compte de l'armement, ni des navires de l'Etat (les navires du ministère des Transports), ni de la Gendarmerie royale du Canada, ni de la flotte de la réserve. Le Comité Hendy ne considère pas, cependant, qu'il serait possible de remplir ces cadres en ayant recours aux anciens membres de la Marine régulière. Vu les restrictions budgétaires qui s'imposent, le Comité accepte que l'effectif soit réduit. Le Comité Hendy était d'avis que les économies qu'il a proposées permettraient d'accroître l'effectif de la réserve de la MRC, compte tenu des restrictions budgétaires. Le Comité admet que la chose est souhaitable, s'il est possible de réaliser des économies.

66. D'après les témoignages recueillis, le roulement annuel du personnel de la réserve de la Marine est en moyenne de 30 p. 100. On a aussi signalé qu'un fort pourcentage du personnel de la réserve de la Marine était trop jeune pour faire partie du service actif. Le Comité souscrit à la recommandation du Comité Hendy qui demande que l'âge minimum d'admission dans la réserve de la Marine soit relevé. Il s'accorde aussi à dire qu'il faut améliorer l'instruction afin de pouvoir restreindre le roulement du personnel.

67. Le rapport du Comité Hendy présente certaines recommandations utiles visant à améliorer la compétence administrative dans la réserve de la Marine. Il faudrait donner suite à ces recommandations.

68. D'après les témoignages recueillis, les restrictions visant les dépenses ont entraîné la fermeture des divisions de l'Air de la réserve de la Marine. Le Comité convient qu'on ne doit pas affecter des fonds à des avions destinés aux opérations militaires pour la réserve de la Marine royale. Il est donc d'avis qu'il n'y a pas lieu de rouvrir les divisions de l'Air de la Marine. Toutefois, le Comité pense que des mesures pourraient être prises pour permettre aux membres de la réserve de la Marine de se maintenir en forme en utilisant les appareils des escadrons de la Marine royale actuellement établis sur nos littoraux.

Marine

69. Le gouvernement a confié cinq tâches principales à la Marine: fournir un renfort aux forces de combat, former les unités logistiques et spéciales qui n'existent pas en temps de paix, fournir un service d'instruction pour appuyer la force de combat, munir d'hommes certains postes de sécurité advenant un cas d'urgence et collaborer aux opérations de survie. Le Comité estime que tels sont les principaux rôles que l'effectif de la Marine doit exercer.

70. Le Comité a longuement débattu la question du nombre d'hommes nécessaires pour accomplir ces tâches. Le gouvernement a indiqué qu'il faudrait 30,000 militaires, répartis comme il suit:

a) Renforts (forces de combat)	7,000—8,000
officiers et hommes de troupe	
Unités spéciales (engagements envers l'OTAN)	1,000
b) Service d'instruction pour appuyer la force de combat	18,000
officiers et hommes de troupe	
c) Sécurité interne	2,500
d) Installations—Survie nationale	1,500
	<hr/> 30,000 environ

L'activité de service. Il a été mentionné que l'appel obligatoire à l'activité pour-rait influencer l'engagement dans les forces de réserve; mais il semble inutile de maintenir des troupes nombreuses qui ne seraient pas prêtes à servir au besoin.

59. La réserve de la MRC et la Milice recrutent un grand nombre de leurs officiers parmi ceux qu'ont fournis les programmes de la Division universitaire d'instruction navale (UNTD) et du corps école d'officiers canadiens (CEOC). Il a été prouvé que, pour toutes sortes de raisons, un grand nombre de diplômés ayant fait partie de l'UNTD et du CEOC ne s'envoient pas dans les unités de la réserve active. C'est une pure perte et le Comité se réjouit des mesures qui ont été prises afin que ce programme d'instruction soit appliqué seulement dans les universités dont la situation rend possible l'envolement de leurs diplômés. À l'avenir, il faudrait se soucier de placer les unités de la UNTD et du CEOC à des endroits tels que, lorsque les unités de réserve changent, elles sont toujours assurées d'avoir un nombre suffisant d'officiers ayant reçu une formation uni-versitaire.

Il faudrait obliger les diplômés qui ont fait partie du CEOC et de l'UNTD de servir dans les forces de réserve pendant une période de temps déterminée. 60. La Commission Suttie et le Comité Draper ont formulé des arguments en faveur de l'affectation d'un officier du quartier général de la Défense natio-nale à la surveillance du fonctionnement de leur service respectif de la réserve. Le Comité Hendy a indiqué que l'organisation du commandement des divisions navales (COND) était inutilement coûteuse et mal conçue. Une surveillance convenue de l'activité de la réserve s'impose. Votre Comité estime qu'on devrait désigner au quartier général de la Défense un officier supérieur dont la tâche principale consisterait à surveiller tous les aspects de l'activité de nos forces de réserve.

61. Aucune mesure visant l'intégration des réserves ne devrait être prise avant que l'intégration de l'Armée active soit chose faite. D'autre part, il fau-drait tenter de loger les unités dans les locaux ordinaires, afin que les frais d'administration soient les moins élevés possible. Il faudrait songer à réaliser des économies en plaçant certains bureaux de recrutement de la force active et les unités de réserve dans les mêmes locaux.

62. Il existe des preuves nombreuses que les méthodes administratives ayant trait aux réserves sont désuètes, gênantes, restrictives, mesquines et entravent de façon générale tout fonctionnement efficace. Il faudrait étudier minutieusement les recommandations formulées dans les rapports Hendy et Suttie au sujet de ces méthodes, y compris les méthodes visant l'attestation, la solde, les approvisionnementnements, la comptabilité, l'utilisation des bâtiments mi-litaires par les civils, et remédier aux conditions qui ont donné lieu à l'expres-sion de ces recommandations.

63. Les trois divisions des réserves ont exprimé des doléances au sujet du calibre du personnel de la force régulière qui est affecté aux unités de réserve. Nul doute que des personnes très compétentes de l'armée régulière y sont affectées; mais la norme générale devrait être élevée.

Présence de la Marine royale du Canada (RMRC)

64. La réserve navale doit remplir quatre tâches principales: fournir le personnel nécessaire pour accomplir des fonctions spéciales en cas d'urgence, constituer une base de mobilisation, s'occuper des opérations de surveillance et assurer la présence de la Marine en temps de paix. Le Comité Hendy a accepté ces rôles et votre Comité les accepte aussi.

siècles ont surgi quant à la question de savoir si elles avaient un rôle utile à jouer. Dans l'armée, on a diminué l'instruction spécialisée et intensifié la formation en matière de survie dans le cas d'une attaque nucléaire.

Si l'impasse actuelle au sujet du recours aux armes nucléaires amoindrit le risque d'une guerre nucléaire, en revanche, elle augmente les possibilités d'une guerre « localisée » du type classique. Les forces régulières qui constituent les « forces existantes » du Canada continueront d'exister, mais elles devront encore puiser dans les effectifs de nos réserves. Le rôle essentiel des forces de réserve sera de fournir ce renfort.

54. En temps de crises, nos forces plus nombreuses auront besoin de plus d'armes, de matériel et d'hommes. Pendant que s'effectuera le ravitaillement en armes et en matériel, les hommes pourront recevoir leur instruction. L'une des principales tâches que devront accomplir les officiers d'expérience et les autres membres compétents de la réserve sera de dispenser l'instruction à ces hommes.

55. Les militaires qui quittent la force permanente pour retourner à la vie civile constituent une source abondante d'hommes expérimentés et bien formés. Jusqu'ici, un tel groupe de militaires expérimentés n'a jamais existé. Malheureusement, la possibilité de puiser à cette source se trouve considérablement diminuée, vu qu'aucun registre n'est tenu de leur adresse. Il faudrait avoir en quelque sorte une liste de la réserve supplémentaire, ce qui modifierait considérablement les besoins de la réserve.

56. Le programme de l'Organisation des mesures d'urgence se fonde sur l'emploi des forces de réserve et des forces régulières. Les mesures à prendre pour assurer la survie s'apprennent facilement et ne sont pas tellement compliquées en soi pour que toutes les troupes de réserve ne puissent recevoir une formation en la matière en plus de leur instruction régulière. Il en coûterait beaucoup de maintenir des forces de réserve à cette seule fin. Par conséquent, le Comité convient qu'il ne faut pas maintenir des forces de réserve uniquement pour assurer les opérations de survie, mais que ces opérations devraient être enseignées à toutes les troupes qui, au besoin, pourraient jouer un rôle dans ce sens.

57. Avant toute réorganisation, les frais d'entretien de la réserve s'élevaient à près de 55 millions de dollars par année. Vu la faible proportion des crédits de la défense qui est affectée à l'équipement des forces régulières et l'importance moindre qu'ont les forces de réserve face à l'effectif relativement nombreux des forces régulières, le Comité estime qu'il faudrait tout faire pour maintenir des forces de réserve efficaces, compte tenu des affectations budgétaires, sans oublier que l'argent épargné grâce à la réduction des effectifs militaires et à la fusion des unités peut être utilisé à bon escient pour donner une meilleure formation aux militaires et leur fournir du matériel. On a réduit de cinq millions et quart de dollars le budget des réserves auxiliaires de la MRC et de l'ARC. Quant au budget de la milice, rien n'indique qu'elles épargnes totales on pourrait réaliser dans ce domaine.

58. Le rôle des réserves consiste à fournir des hommes bien formés en vue d'une situation critique. Les témoignages que des représentants des trois armes ont déposés devant le Comité indiquent que plusieurs réservistes, pour des raisons de familles, d'affaires, d'âge, de santé, ne pourraient pas faire de service actif. Ainsi les réserves ne serviraient plus leur but principal. Il faudrait songer à modifier la loi sur la défense nationale de sorte que les réservistes soient soumis à des appels restreints à l'activité. Les limites d'âge et les normes d'aptitude devraient être fixées de telle sorte que la plupart des réservistes soient aptes à

48. Le Comité a été très satisfait dans l'ensemble du haut calibre de l'enseignement, de la discipline et de l'état physique qui existent dans les collèges militaires. Les membres du Comité sont convaincus que ces institutions fournissent des jeunes gens de bonne formation et pourvus de la motivation voulue pour servir comme officiers subalternes dans nos forces armées.

49. Le Comité accepte la décision visant à porter à quatre ans la durée du service obligatoire; mais les répercussions du programme des prêts aux étudiants sur le recrutement effectué en vertu du programme de formation d'officiers des forces régulières le préoccupe quelque peu. On est d'accord pour dire que, bien que les deux facteurs susmentionnés puissent compliquer le recrutement, les cadets qui sont effectivement recrutés seront probablement portés à rester dans l'armée.

50. Le Comité fait également remarquer que, bien que les diplômés en vertu du Programme de formation d'officiers des forces régulières qui démissionnent après leur service obligatoire représentent une perte pour les forces armées, ils sont néanmoins un grand atout pour le pays dans son ensemble en leur qualité de simples citoyens.

51. Le Comité approuve l'introduction de l'étude et de l'emploi obligatoires du français dans les « matières qui ne portent pas sur la langue » dans le cours du *Royal Military College*. Le Comité s'est demandé s'il y avait lieu d'élever le Collège militaire royal au rang d'institution décernant des degrés. Il a conclu que, pour en arriver là, il faudrait accepter un nombre beaucoup plus grand de diplômés des collèges militaires.

Recommandations

52. En conséquence, le Comité recommande:

- a) Que l'étude dont il a été question dans les témoignages soit effectuée afin qu'on puisse prévoir de façon précise le nombre des officiers diplômés d'université dont on aura besoin;
- b) Que le nombre éventuel de cadets à former en vertu du Programme de formation d'officiers des forces régulières dans les collèges militaires du Canada, par opposition aux universités civiles, soit déterminé le plus tôt possible. Le Comité estime qu'il faudrait en former le plus grand nombre possible dans ces collèges;
- c) Que les installations désuètes du *Royal Military College* soient immédiatement remplacées et qu'on fournisse le matériel nécessaire;
- d) Qu'une étude soit faite sur les installations du Collège militaire royal et de *Royal Roads*, afin d'y relever les lacunes existantes et d'y apporter remède;
- e) Que les élèves soient choisis avec plus de soin afin de réduire au Collège militaire royal et à *Royal Roads* la proportion de ceux qui abandonnent leurs études au début.

CHAPITRE V—FORCES DE RÉSERVE

53. Avant l'apparition de la menace de guerre nucléaire, dans les années 50, les forces de réserve et une force régulière de peu d'envergure constituaient l'effectif militaire du Canada en temps de paix. Le rôle principal de la petite force régulière consistait à fournir un service d'instruction aux réserves. La menace d'une guerre nucléaire ne laissait plus le temps de procéder à la mobilisation; aussi le besoin d'avoir une grande «force existante» s'est-il fait sentir. Le Canada a mis sur pied des forces régulières de 120,000 hommes; voilà pourquoi l'importance des forces de réserve a diminué au point que des doutes

43. Le Comité estime que les résultats obtenus au *Royal Military College* ont été très satisfaisants, étant donné qu'ils valent, et dépassent même, ceux d'institutions comparables des États-Unis et de Grande-Bretagne, et qu'ils se comparent très avantageusement avec ceux des universités civiles du Canada. On a constaté, toutefois, que la proportion d'étudiants, au Collège militaire royal et à *Royal Roads*, qui abandonnent leurs études est très élevée pour diverses raisons. L'inscription au Collège militaire royal exige l'immatriculation dans le cas d'étudiants provenant de toutes les régions du pays. Le nombre d'étudiants qui abandonnent leurs études à ce niveau est uniformément élevé. Vu qu'à ce collige les études se poursuivent dans les deux langues, cela contribue à augmenter le nombre des élèves qui abandonnent leurs études; mais il en ressort simplement la nécessité particulière du bilinguisme.

44. Le Comité a étudié en détail les procédés suivis relativement à la sélection et, bien que satisfait dans l'ensemble des méthodes employées, il recommande instamment que les candidats soient choisis avec plus de soin encore, afin de réduire, au Collège militaire royal et à *Royal Roads*, le nombre d'étudiants refusés au départ, parce que leur instruction est insuffisante ou parce qu'ils sont incapables de se plier à la discipline militaire.

En outre, on n'a pas encore acquis suffisamment d'expérience au sujet du «programme visant au diplôme complet» au *Royal Military College*, depuis son inauguration en 1956, pour connaître exactement ce que permet d'enviasager ce programme relativement à la formation d'officiers de carrière. Plusieurs années d'expérience sont encore nécessaires.

45. Il est démontré que, relativement aux forces armées, le rythme de dépendition des universités civiles est élevé. On considère parfaitement normal que les cadets qui poursuivent leurs études aux universités civiles soient plus portés à quitter les forces armées, lorsqu'ils ont accompli la période de service obligatoire. Le nombre insuffisant d'officiers de la marine, et surtout de diplômés en génie, ayant poursuivi leurs études aux universités civiles, préoccupe le Comité.

46. Les témoins ont fourni diverses données sur le coût du Programme de formation d'officiers des forces régulières. On constate qu'il est impossible de faire une comparaison précise entre les frais des collèges militaires et des universités civiles. Il est difficile de se rendre compte si, relativement à la formation des officiers, les collèges militaires sont plus avantageux que les universités civiles; mais le Comité estime, d'après les témoignages recueillis, que l'écart entre le coût des uns et des autres est peu sensible. Ainsi les avantages intangibles des collèges militaires prennent relativement plus d'importance.

47. Le Comité ne peut se ranger à l'opinion de la Commission Glassco, selon laquelle il faudrait abaisser la compétence et réduire le nombre du personnel enseignant des collèges militaires. Le Comité, au contraire, est fortement d'avis qu'il faudrait maintenir au plus haut point le calibre de ce personnel. Le Comité a constaté avec regret que, dans bien des cas, les installations du *Royal Military College* sont démodées et il ne peut concevoir qu'on obtienne d'excellents résultats avec des laboratoires et des salles de lecture aménagés dans des endroits qui servaient auparavant de chaufferies, d'étables, de granges, et ainsi de suite. Le Comité estime également que le matériel est insuffisant et recommande instamment que remède soit porté à ces lacunes. Bien que le Comité ait appris avec satisfaction la nouvelle touchant le nouveau dortoir au *Royal Military College*, il insiste pour que soient corrigées les lacunes encore existantes.

Discipline académique	Catégorie	Admissibles				Option exercée				Pourcentage			
		Marine	Armée	Aviation	Total	Marine	Armée	Aviation	Total	Marine	Armée	Aviation	Total
GÉNIE.....	Col. des forces armées du Canada												
	Service navigant.....	—	—	83	—	—	—	23	—	%	—	%	%
	Service non navigant.....	—	—	59	—	—	—	18	—	—	—	28	—
	Total.....	55	122	142	319	24	21	41	86	44	17	29	27
	Université												
	Service navigant.....	—	—	69	—	—	—	27	—	—	—	39	—
	Service non navigant.....	—	—	177	—	—	—	94	—	—	—	53	—
	Total.....	24	77	246	347	18	42	121	181	75	55	49	52
	Total—Programme d'instruction pour la formation d'officiers des forces régulières.....	79	199	388	666	42	63	162	267	53	32	42	40
	Col. des forces armées du Canada												
ARTS, SCIENCES ET AUTRES	Service navigant.....	—	—	69	—	—	—	11	—	—	—	16	—
	Service non navigant.....	—	—	25	—	—	—	6	—	—	—	24	—
	Total.....	27	140	94	261	12	40	17	69	44	29	18	26
	Université												
	Service navigant.....	—	—	37	—	—	—	7	—	—	—	19	—
	Service non navigant.....	—	—	48	—	—	—	18	—	—	—	38	—
	Total.....	21	217	85	323	7	96	25	128	33	44	29	40
	Total—Programme d'instruction pour la formation d'officiers des forces régulières.....	48	357	179	584	19	136	42	197	40	38	24	34
	Col. des forces armées du Canada												
	Service navigant.....	—	—	152	—	—	—	34	—	—	—	22	—
TOTAL.....	Service non navigant.....	—	—	84	—	—	—	24	—	—	—	29	—
	Total.....	82	262	236	580	36	61	58	155	44	23	25	27
	Université												
	Service navigant.....	—	—	106	—	—	—	34	—	—	—	32	—
	Service non navigant.....	—	—	225	—	—	—	112	—	—	—	50	—
	Total.....	45	294	331	670	25	138	146	309	56	47	44	46
	Total—Programme d'instruction pour la formation d'officiers des forces régulières.....	127	556	567	1,250	61	199	204	464	48	36	36	37
	Col. des forces armées du Canada												
	Service navigant.....	—	—	152	—	—	—	34	—	—	—	22	—
	Service non navigant.....	—	—	84	—	—	—	24	—	—	—	29	—

TABLEAU 1 Programme d'instruction pour la formation d'officiers des forces régulières (ROTP) et statistiques de la formation des officiers
11 août 1964 (basé sur les inscriptions et les départs durant les cinq années passées)

Catégorie	Année pré-paratoire Candidats avec imma-triculation	1 ^{re} année Candidats imma-triculation supérieure	2 ^e année	3 ^e année	4 ^e année	di- plômés	Années au service			Ne se reti- rent pas des rangs après 3 années de service (4 ^e année de service)
							1 ^{re}	2 ^e	3 ^e	
(CMR)	Ont doublé leur année.....	1	2	4	1					
	Nouvelles inscriptions.....	175	125	92	59					
	Total d'inscriptions.....	176	127	94	60					
	Ont abandonné.....	51	35	23	2		53	53		29
(RMC)	Ont réussi.....	125	92	71	59	58				
	Ont doublé leur année.....	4	5	1	1					
	Nouvelles inscriptions.....	63	53	46	44					
	Total d'inscriptions.....	67	58	47	45					
(RR)	Ont abandonné.....	14	12	3	1	44	44	44	43	37
	Ont réussi.....	53	46	44	44					
	Ont doublé leur année.....	1	—	6	1					
	Nouvelles inscriptions.....	129	88	82	72					
Total des collèges des forces armées du Canada.	Total d'inscriptions.....	130	88	88	73					
	Ont abandonné.....	42	6	16	3	70	70	70	69	51
	Ont réussi.....	88	82	72	70					
	Ont doublé leur année.....	7	7	11	3					
Section universitaire de la ROTP—Moyenne de l'effectif.....	Nouvelles inscriptions.....	317	233	199	175					
	Total d'inscriptions.....	324	240	210	178					
	Ont abandonné.....	91	41	35	6	172	172	172	169	117
	Ont réussi.....	233	199	175	172					
Note 1.—Les chiffres indiqués dans cette section représentent la moyenne annuelle de l'effectif dans la section universitaire, par année scolaire. La section univer-										
sitaire est dirigée par chaque arme. Une grande partie du recrutement a lieu sur place aux universités durant l'année scolaire et, on s'efforce, autant que possible, d'in-										
téresser les étudiants qui ont réussi à une ou à plusieurs années scolaires. Les services internes s'efforcent de maintenir le nombre des universitaires au maximum de										
la proportion autorisée. Mais, étant donné que les étudiants sont inscrits dans leur 2 ^e , 3 ^e , 4 ^e ou 5 ^e année, il n'est pas pratique de préparer un graphique montrant les										
échecs et les abandons comme dans le cas des collèges des forces armées du Canada.										
Total de la ROTP.....	247	552	439	392	329	323	321	319	314	195
OFFICIERS PROMUS DES RANGS										
a) sans diplômes.....										
Note 2.—Un officier promu des rangs (sans avoir un diplôme) est d'habitude qualifié dans un domaine particulier. L'emploi subséquent au grade d'officier est										
normalement limité à son corps en particulier ou dans sa spécialisation. Parfois officiers <i>n'ont pas</i> le choix de se retirer; et, par conséquent, les chiffres indiqués dans										
la dernière colonne reflètent uniquement les pertes normales.										
b) avec diplômes.....										
Note 3.—L'effort des forces armées de choisir dans leurs rangs des candidats pour un enseignement universitaire et pour la promotion a été très restreint par le nombre										
très limité d'hommes qui ont la formation nécessaire et l'antécédent scolaire pour être admis à l'université.										

- e) Que soit complétée l'étude sur les abris publics contre les retombées entrainées en Alberta. Il faudrait ensuite faire une analyse fondée sur les faits qu'elle aura révélés, afin d'établir les frais qu'entraînerait la construction d'abris anti-retombées dans tout le pays et de déterminer le pourcentage de population qu'ils pourraient ainsi protéger;
- f) Qu'une décision soit prise au sujet des abris contre les retombées. La population ne veut pas construire d'abris. Il est financièrement impossible que le gouvernement fédéral procure des abris à toute la population, par conséquent, il incombe au gouvernement de décider, en se fondant sur les frais révélés par l'enquête menée en Alberta, s'il va assurer la protection d'une partie de la population;
- g) Que des programmes soient établis en vue de communiquer périodiquement au public des renseignements essentiels par la télévision, la radio et la presse, et
- h) Qu'on songe à vérifier périodiquement le système d'alerte dans toutes les localités du pays.

CHAPITRE IV—PROGRAMME D'INSTRUCTION POUR LA FORMATION D'OFFICIERS DES FORCES RÉGULIÈRES (ROTP)

40. Les forces armées auront besoin d'environ 1500 nouveaux officiers chaque année. D'après les témoignages recueillis, il faudra recruter approximativement 450 officiers par année parmi les diplômés d'université, afin de pouvoir maintenir une proportion raisonnable d'officiers ayant atteint ce niveau d'instruction. Ces données sont susceptibles d'être modifiées; mais tant que l'étude n'aura pas été achevée, elles représentent les besoins courants.

41. Les forces armées doivent affronter la concurrence qui s'offre dans l'industrie et dans d'autres carrières possibles pour les diplômés d'université. Les programmes visant à stimuler l'instruction constituent le seul moyen de faire face à cette concurrence. Le Comité convient qu'un programme semblable au Programme de formation d'officiers des forces régulières (ROTP) est nécessaire. Les témoignages indiquent que les autres méthodes suivies en vue d'attirer les diplômés d'université vers les carrières permanentes n'ont pas réussi.

42. Le ministère de la Défense nationale nous a fourni deux tableaux fort utiles montrant la proportion des départs résultant de refus aux examens dans les collèges militaires du Canada et les universités. La proportion des départs après la réussite des examens est établie par collège militaire, section universitaire, discipline et chaque arme.

35. Les retombées radio-actives pourraient constituer un grand danger pour les régions du pays non atteintes par l'attaque nucléaire. Les moyens permettant de détecter et de prévoir ces retombées ont été prévus. En cas de retombée, on aurait généralement une période d'avertissement raisonnable.

On a établi des programmes prévoyant des prêts hypothécaires, des emprunts bancaires et des renseignements, afin d'inciter les propriétaires de maisons à construire leurs propres abris contre le souffle. Toutes ces initiatives ont échoué. Une bonne partie de cette publicité ne porte aucun fruit et la plupart des brochures aboutissent dans la corbeille à papier. En général, le public ne s'y intéresse pas en temps de paix relative. C'est un fait qu'il faut admettre.

36. En Alberta, on a entrepris un relevé des édifices publics pour savoir s'ils pourraient servir d'abris contre les retombées. Il s'agit là d'une étude d'essai. Nous n'avons encore aucun renseignement sur le coût de cette enquête ni sur les frais entraînés par la modification éventuelle des édifices existants pour les transformer, d'après les normes requises, en abris. Il se peut que l'enquête menée en Alberta démontre qu'il est possible d'assurer une protection contre le souffle dans les édifices publics à un prix raisonnable.

37. Le gouvernement fédéral a dépensé une moyenne de 26.7 millions de dollars par an pour la planification civile d'urgence ces six dernières années. Ces dépenses se chiffraient au départ à un minimum de 4.1 millions en 1957-1958 pour atteindre un maximum de quelque 70 millions en 1961-1962. Au cours de la présente année financière, la dépense prévue est de 19 millions. Le Royaume-Uni prévoit une dépense moindre par habitant, soit un total de 38.5 millions. Les Etats-Unis dépenseront davantage par habitant, soit 358 millions. Les dépenses relatives aux éléments essentiels d'un réseau de communications, d'un réseau d'alerte, d'une organisation centrale de planification et d'agences de coordination des organismes extérieurs ainsi qu'à des recherches restreintes sur les abris anti-retombées, seraient relativement modestes et elles sont indispensables pour procurer une sécurité fondamentale et des possibilités de survie. On pourrait encore prévoir d'autres dépenses importantes destinées aux abris contre le souffle et contre les retombées, à des programmes intensifs d'instruction publique ainsi qu'à d'autres initiatives utiles. Le Comité estime que, pour se conformer à l'ordre des priorités, les dépenses destinées à la planification civile d'urgence devraient se limiter aux sommes nécessaires concernant les éléments essentiels mentionnés ci-dessus.

38. Il s'est produit récemment un déclenchement accidentel du système d'alerte à Ottawa (Ontario). Cette fausse alerte a fait ressortir plusieurs points faibles des méthodes administratives de l'OMU qu'il faudrait rectifier. L'une des grandes faiblesses a été qu'un grand nombre de personnes ignoraient qu'il fallait ouvrir la radio pour se renseigner.

39. En conséquence, le Comité recommande:

- a) Qu'une réunion fédérale-provinciale sur la planification d'urgence soit tenue avant la fin de l'année. A l'avenir, des réunions devraient avoir lieu au moins une fois l'an, afin d'assurer une liaison constante entre les deux paliers de gouvernement. Il faut instituer une planification conjointe qui reconnait clairement les attributions des divers gouvernements;
- b) Que les exercices nationaux de l'OMU reprennent et se fassent régulièrement;
- c) Que prennent fin les dépenses relatives au programme actuel de construction d'abris familiaux;
- d) Que les recherches soient intensifiées en vue de mettre au point des techniques expéditives de protection familiale avec le matériel disponible;

CHAPITRE III—PLANIFICATION CIVILE D'URGENCE

30. L'objectif primordial de la planification civile d'urgence est de trouver des moyens de prévoir maintenant ce qui pourra se faire en cas d'attaque nucléaire ou d'une grande calamité d'ordre civil. Les mesures projetées devaient garantir:

- a) Le maintien du gouvernement civil à tous les paliers;
- b) L'identification et la répartition des ressources disponibles après l'attaque pour en permettre l'emploi efficace en vue de la survie de la population et du maintien de toute activité militaire nécessaire; et,
- c) La communication de renseignements à la population civile, en vue de lui permettre de se servir des moyens existants de protection.

31. En cas d'urgence, il est essentiel de recueillir rapidement tous les renseignements possibles concernant les différents aspects de la situation. Il faudra transmettre rapidement ces renseignements à ceux qui devront prendre des mesures. Par conséquent, une des tâches essentielles de la planification civile d'urgence est de garantir l'existence d'un réseau efficace de communications dans tout le pays advenant un état d'urgence.

32. En un cas d'urgence, tous les cadres du gouvernement civil en fonction doivent remplir leurs fonctions respectives. Les cadres de l'OMU (Organisation des mesures d'urgence) fourniraient les moyens de communication, l'expérience de ses spécialistes et joueraient un rôle de coordination tout en assurant la direction des divers gouvernements civils. Les organisations de l'OMU exercent leur activité dans toutes les provinces et, sur un total de 4,000 municipalités, 2,100 en sont dotées, ce qui assure la protection de quelque 80 p. 100 de la population. Il reste à faire les efforts nécessaires pour assurer la protection des autres municipalités.

33. Les responsabilités et les attributions assignées aux différents cadres de la hiérarchie gouvernementale varieraient nécessairement d'après la nature de l'état d'urgence qui pourrait aller de la calamité locale d'ordre civil à une attaque nucléaire importante atteignant de vastes portions de notre territoire. Il est important de définir les responsabilités et les attributions assignées à chaque palier de gouvernement d'après ces diverses circonstances. On a constaté que la répartition de ces responsabilités est mal définie. La Conférence fédérale-provinciale sur les mesures d'urgence ne s'est pas réunie depuis décembre 1962 et aucune réunion n'est actuellement prévue. Aucun exercice national n'a eu lieu depuis plusieurs années. Le Comité craint que ce manque de liaison continue et de contacts avec les provinces n'ait sérieusement compromis l'efficacité des plans. Les brèches qui existent dans le domaine des différentes responsabilités assignées n'ont pas été efficacement comblées.

34. On n'a pris aucune initiative en vue de protéger la population contre le souffle. Le bref délai d'alerte rendrait l'évacuation des grands centres de population une entreprise douteuse. Le coût de l'aménagement d'abris convénables contre le souffle est si élevé qu'il semble injustifié. Le Comité estime, à l'unanimité, que les ressources nécessaires afin de fournir à la population une protection contre le souffle pourraient servir plus utilement à la défense militaire et qu'elles pourraient ainsi contribuer à prévenir la guerre. Il est possible d'établir, utilement et à peu de frais, un système de défense contre les engins balistiques intercontinentaux. Pour cela, il faudrait réétudier la décision de ne pas fournir d'abris contre le souffle à la population civile. On croit peu vraisemblable, néanmoins, que les aspects économiques du réseau antibalistique ou de l'aménagement d'abris contre le souffle permettent prochainement la réalisation de ces programmes.

de décider si, compte tenu des restrictions budgétaires, il y aurait moyen de leur assurer une plus grande protection contre les attaques aériennes qu'ils n'en ont à l'heure actuelle.

25. Etant donné ce qu'accomplissent d'autres pays qui entrent dans le domaine de la propulsion au moyen de l'énergie nucléaire, le Comité est d'avis qu'il serait très avantageux pour l'industrie et la défense du Canada si notre pays faisait de même. Toutefois, compte tenu des fortes dépenses en cause, le Comité croit qu'une telle mesure devrait se borner pour le moment à des études que ferait conjointement les ministères de la Défense nationale, de l'Industrie et des Transports sur la question de savoir si cela est souhaitable et réalisable, et que le gouvernement canadien devrait stimuler les industries privées intéressées à la propulsion au moyen de l'énergie nucléaire en leur accordant son appui à l'égard d'études visant des programmes d'essai ou d'expérimentation.

26. Le Comité se rend compte que le service dans la Marine, donnant lieu à de longues absences en mer, crée pour le personnel des difficultés familiales toutes particulières. Pendant son séjour à Halifax, le Comité a constaté que la pénurie aiguë de logements pour la Marine intensifiait ces problèmes relatifs au moral du personnel dans la région du port d'Halifax. Le Comité a appris que, sur la côte du Pacifique, le logement était meilleur et coûtait moins cher, fait qui accentue les problèmes relatifs au moral et au coût de la vie sur le littoral de l'Atlantique.

Armée

27. Des membres du Comité se sont rendus au camp Gagetown, pour y voir les manœuvres d'été de l'Armée et des démonstrations de nouvelles formations tactiques. Il y a entendu les personnes suivantes: le major général R. Rowley, officier général commandant, armée en campagne, camp Gagetown; le colonel C. D. Simpson, commandant du camp, camp Gagetown; le brigadier Norman Wilson Smith; le lieutenant-colonel John Clarkson, et le lieutenant-colonel Gordon Sellars. Le Comité a été bien impressionné par la bonne tenue et le moral des troupes du camp Gagetown.

28. Dans son rapport interimaire, présenté lors de la dernière session, le Comité spécial de la défense a parlé du problème que constitue l'absence de mobilité tactique de notre armée. L'acquisition de quelque 480 voitures blindées pour le transport des militaires, dans un avenir prochain, devrait amoindrir le problème, mais il faudrait poursuivre les efforts en vue d'accroître la mobilité tactique des effectifs aéroportés.

Recommandations

29. Le Comité recommande:

- a) Que le programme *Hydro-Foil* se poursuive en collaboration avec nos alliés et qu'on continue de suivre de près la mise en œuvre de ce programme et ses répercussions économiques;
- b) Qu'une décision soit prise bientôt au sujet du programme de remplacement des navires, la priorité étant donnée à l'acquisition de rem-navires de soutien logistique pour le transport des troupes terrestres;
- c) Qu'on songe à doter notre flotte d'une protection anti-aérienne;
- d) Que, de concert avec des dirigeants de la Société centrale d'hypothèques et de logement, des hauts fonctionnaires de la Marine et du ministère de la Défense nationale continuent à étudier avec les autorités de la région d'Halifax-Dartmouth les solutions possibles du problème de logement du personnel de la Marine dans cette région; et
- e) Que des études conjointes soient faites sur la question de savoir si la propulsion au moyen de l'énergie nucléaire est souhaitable et réalisable, ainsi qu'il en est question à l'alinéa 25.

au point et spécialisée pour la guerre anti-sous-marine. L'ARBC, qui possède des avions spéciaux, est bien formée et bien équipée pour exercer un rôle dans ce domaine.

18. A mesure que seront mis au rancart des vaisseaux anciens, servant à d'autres fins qu'à la guerre anti-sous-marine, notre Marine sera effectivement restreinte à son rôle particulier de guerre anti-sous-marine. Elle ne sera pas alors en mesure de se défendre contre des attaques aériennes ni de livrer des combats à la surface. On remarque qu'actuellement la Marine n'a que des moyens très restreints pour transporter des troupes et du matériel.

19. Dans le cas d'une guerre nucléaire, il est peu probable qu'on utilise des convois. Néanmoins, le pouvoir de repérer et d'assurer la surveillance des flottes modernes de sous-marins ennemis en temps de paix a un effet préventif et constitue, par conséquent, une tâche utile pour la Marine du Canada.

20. Une guerre du type classique ou une action importante de l'ONU pourraient exiger l'appui de convois d'hommes et de matériel. Les grandes puissances n'ont pas seules le droit d'employer les sous-marins et nous pouvons nous attendre que d'autres pays en acquerront. Il nous faut donc une Marine de guerre anti-sous-marine pour accomplir cette mission.

21. La portée d'une menace sous-marine suscite de graves soucis relativement au prix qu'il en coûterait pour que notre potentiel ASM atteigne un niveau acceptable, compte tenu du matériel actuel. Comme l'utilisation des sous-marins étrangers du dernier modèle et de meilleure qualité, particulièrement propulsés par l'énergie nucléaire et armés d'engins nucléaires, se généralise de plus en plus, il devient indispensable d'effectuer sans délai des recherches et de mettre en œuvre des forces et des tactiques ASM plus efficaces. Le Comité est d'avis que le programme canadien *Hydra-Foil*, s'il réussit, pourrait en partie régler cette difficulté.

22. Le Comité reconnaît que le Canada doit continuer à jouer son rôle en matière de guerre anti-sous-marine en collaboration avec ses alliés.

23. Le Comité constate avec plaisir que le Livre blanc dit qu'une tendance se dessine en vue d'organiser des forces terrestres et aériennes mobiles et se complétant les unes les autres, augmentant ainsi les moyens d'action du Canada pour le maintien de la paix. Il faudrait songer à étendre le rôle restreint de la Marine, afin que celle-ci puisse secondar les deux autres armes dans ce domaine.

24. On a désaffecté ou l'on désaffectera bientôt un certain nombre de vaisseaux. Il faut songer à les remplacer. On a le choix entre des vaisseaux de guerre anti-sous-marins et/ou des vaisseaux qui permettront d'accomplir des tâches plus variées. De l'avis du Comité, le Canada n'a pas les moyens de se payer une Marine apte à toutes les fonctions, mais il doit continuer à se spécialiser.

Le Comité appuie l'intention annoncée récemment de moderniser un certain nombre de nos vaisseaux de guerre anti-sous-marins. Il faudrait ensuite s'occuper d'abord d'acquérir des vaisseaux aptes à donner un appui logistique et à répondre aux besoins en matière de transport de nos troupes terrestres. Il faudrait étudier à fond cette question en collaboration avec le ministère des Transports. L'emploi du *Bonaventure* à cette fin coûte cher, est moins efficace, et enlève à cette importante unité de guerre anti-sous-marine la tâche qui lui a été confiée. En dehors de cela, les autres vaisseaux de remplacement devraient augmenter notre flotte de guerre anti-sous-marine.

Le Comité s'inquiète des moyens restreints de défense anti-aérienne de notre flotte actuelle. Il estime qu'il faudrait étudier à fond le problème, afin

Collège militaire royal, de M. G. F. G. Stanley, chef du département de l'His-
toire, et du colonel G. F. Stevenson, président de la Commission des entrevues
de la région centrale de l'Armée.

9. Le Comité a considéré le rôle et les fonctions des forces de réserve. A
ce sujet, il a entendu le témoignage de l'honorable Lucien Cardin, ministre
associé de la Défense nationale, et du colonel C. P. MacPherson, directeur de la
milice et des cadets.

Le lieutenant-colonel W. R. Learmonth, président de la Conférence des
associations de défense, et trois autres membres de cet organisme ont comparu
devant le Comité et rendu témoignage au sujet des forces de réserve. Le Comité
a aussi entendu le témoignage des personnes suivantes:

Le brigadier E. R. Suttie, président de la commission de réorganisation
de l'Armée canadienne (milice), le commodore R. I. Hendy, président du
comité ministériel chargé d'étudier le rôle de l'organisation de la Marine
royale du Canada, et le colonel d'aviation J. W. P. Draper, président du
comité ministériel chargé d'étudier les services auxiliaires de l'Aviation
royale du Canada.

10. Le Comité soumet ce rapport des maintenant afin que la Chambre des
communes ait ses recommandations avant que le gouvernement prenne une
décision définitive sur certaines lignes de conduite qu'a étudiées le Comité.

11. Le comité a reçu une série de documents sur des sujets concernant la
défense, dont la remise avait été ordonnée à la dernière session. Le Comité a
l'intention de les étudier, ainsi que d'autres questions, au cours des derniers
mois de la présente session.

12. Le Comité a l'intention de soumettre, immédiatement avant la fin de
la présente session du Parlement, un autre rapport provisoire portant sur
toute son activité pendant la session.

CHAPITRE II—LES TROIS ARMES

Marine

13. L'efficacité de nos forces maritimes et le calibre des officiers et des
hommes qui les composent ont vivement impressionné le Comité.

14. Le Comité a vu des démonstrations du fonctionnement de l'hélicoptère
HSS-2 à partir d'un escorteur d'escadre. Cette importante invention cana-
dienne, qui comprend le système d'atterrissage *Bear-Trap*, est très impres-
sionnante. Le Comité a été heureux d'apprendre que d'autres pays s'intéressent
beaucoup à cet appareil.

15. On nous a expliqué la manœuvre du *Provider*. Ce vaisseau qui, à
grande vitesse, se ravitaillait en solides et en liquides, représente un progrès
marqué. La mise au point de ce vaisseau a donné lieu à des difficultés du point
de vue de la mécanique et des contrats. De l'avis du Comité, ces difficultés ne
portent pas atteinte à la valeur générale du vaisseau. Toutefois, le Comité
devrait en faire l'étude lorsqu'il examinera les « pratiques d'achat ».

16. Pendant les exercices de défense anti-aérienne au large des Bermudes,
l'emploi de canons de 3,70 pouces n'a pas réussi dans plusieurs cas. On a re-
marqué que ces armes n'offraient qu'une défense restreinte contre les avions
supersoniques. On a exprimé des doutes quant à l'utilité de cette arme com-
plexe.

17. Le Comité conclut que, tels qu'ils sont constitués présentement, notre
Marine et le commandement maritime de l'ARMC constituent une équipe très

M. Elgin B. Armstrong, sous-ministre, le brigadier W. J. Lawson, juge-avocat général, et M. Jack Hodgson, sous-ministre adjoint de la Défense nationale (finances).

On a entendu le témoignage des personnes suivantes étrangères à la fonction publique: le brigadier Richard S. Malone, de Winnipeg (Man.), le maréchal de l'Air W. A. Curtis et le major-général W. H. S. Macklin, tous deux de Toronto (Ont.).

Dans son deuxième rapport à la Chambre, en date du 10 juin 1964, le Comité a fait rapport à la Chambre que le Bill C-90 n'avait pas subi de modifications.

5. Pendant l'étude du Bill C-90, le Comité a entendu des témoignages relatifs aux répercussions qu'aurait la réorganisation projetée des forces armées sur les besoins au chapitre de l'effectif de trois armes. On a attiré tout particulièrement l'attention sur le problème des militaires qui seront mis à la retraite contre leur gré. À ce sujet, le Comité a fait certaines observations et recommandations dans son troisième rapport à la Chambre, en date du 17 juin 1964.

6. Le Comité a passé trois jours, au cours de la dernière semaine de juillet, à visiter nos forces maritimes sur le littoral de l'Est. Une journée a été passée au quartier-général du SACLANT, à Norfolk, en Virginie. Les personnes suivantes ont présenté des mémoires:

Le contre-amiral J. V. Brock, commandant de la région maritime; le commodore de l'Air F. S. Carpenter, commandant adjoint de la région maritime; le commodore E. N. Clarke, surintendant de la région de la côte atlantique; le commodore R. L. Hennessy, commodore pour le personnel de la région atlantique; le lieutenant-commander W. T. Marchant; le lieutenant-colonel S. S. R. Conway; le capitaine R. W. Timbrell; le commandeur W. S. Blandy; le capitaine G. C. Edwards; le lieutenant-commander S. H. Rowell; le lieutenant-commander D. H. Tate; le capitaine T. C. Pullen; le commandant d'aviation Robert McNaïr; M. W. B. Bailey; M. R. Dexter; le lieutenant-commander H. J. Bird; le lieutenant-commander W. A. Byatt; le lieutenant-commander R. F. Strout; le commandeur J. C. Pratt; le commandeur C. G. Pratt; le capitaine D. L. Macknight; le commandeur D. H. P. Ryan; le commandeur A. E. Fox; le commandeur B. C. Thillaye; l'amiral H. P. Smith, commandeur allié suprême de la marine américaine pour l'Atlantique; le vice-amiral Charles E. Weakley, de la marine américaine, commandeur de la force de guerre anti-sous-marine de l'Atlantique, accompagné du vice-amiral R. D. Hogle, chef de l'état-major au quartier-général du SACLANT; le commandeur J. B. Carling; le major J. D. Dillon; le commandeur S. Bruland; le commandeur J. J. Doak; le commandeur J. L. Davis et le capitaine R. J. Davis.

7. Lors de l'étude par le Comité du Programme de planification civile d'urgence, l'honorable Charles M. Drury, ministre de la Production de défense, et M. Paul Faguy, directeur de l'Organisation des mesures d'urgence, ont témoigné.

8. Le Comité a étudié l'application du Programme de formation des officiers des forces régulières. Au cours de cette étude, le Comité a reçu les témoignages du ministre associé de la Défense nationale, l'honorable Lucien Cardin, et du sous-ministre de la Défense nationale, M. Elgin B. Armstrong. Le détail des renseignements concernant les divers plans a été fourni par le commodore H. V. M. Croos, directeur du Programme de formation des officiers des forces régulières, le colonel W. R. Sawyer, vice-commandant et directeur des études au Collège militaire royal, et le commandeur G. Clark.

Le Comité a visité le Collège militaire royal de Kingston (Ont.) et a reçu sur place des mémoires du commodore de l'Air L. G. Birchall, commandant du

Les témoins entendus du ministère de la Défense nationale ont été l'honorable Paul T. Hellyer, ministre, l'honorable Lucien Cardin, ministre associé, Comité.

4. Le 12 mai, la Chambre des communes a délégué au Comité, pour qu'il l'étudie et en fasse rapport, le Bill C-90, intitulé Loi modifiant la loi sur la défense nationale. L'étude de ce bill a été le premier article au programme du

3. Le Comité a tenu 30 réunions afin de recevoir des renseignements et des opinions et faire des études sur les matières visant la défense. Ce nombre comprend quatre jours passés à une visite de la région maritime (Atlantique), à un exercice de la flotte et à une visite au quartier général du SACLAN, à Gagetown (N.-B.) et le Collège militaire royal de Kingston (Ont.).

Un sous-comité directeur comprenant MM. Hahn (président), Lambert (vice-président), Langlois, Lessard (Lac-Saint-Jean), MacLean, Temple et Winch a été formé pour arranger et préparer d'avance le travail du Comité.

Plus tard, MM. MacInnis et McNulty ont été nommés et sont maintenant membres du Comité.

Il est ordonné—Que le comité spécial de la défense, formé le 8 mai 1964, soit composé de MM. Asselin (Notre-Dame-de-Grâce), Béchard, Brewin, Deachman, Fane, Granger, Groos, Hahn, Harkness, Lambert, Langlois, Laniel, Lessard (Lac-Saint-Jean), Lloyd, MacLean (Queens), MacRae, Martin, Matheson, McMillan, Nielsen, Pilon, Smith, Temple et Winch.

2. Le 14 mai 1964, la Chambre désignait ainsi qu'il suit les vingt-quatre membres du Comité:

Que le Comité se compose de 24 membres désignés par la Chambre à une date ultérieure et que la paragrahe (1) de l'article 67 du Règlement soit suspendu à cet égard.

Que les procès-verbaux et délibérations du comité spécial, tenues au cours de la dernière session, ainsi que les témoignages qu'il a alors recueillis, soient remis audit comité et versés à ses archives; et

Qu'il soit autorisé à se transporter d'un endroit à un autre;

Que le Comité ait le pouvoir de convoquer des personnes, d'exiger la production de documents et de dossiers et d'interroger des témoins; de ses avis en l'espèce;

Il est décidé—Qu'un comité spécial soit nommé pour continuer l'étude des problèmes relatifs à la défense, entrepris par le comité spécial au cours de la dernière session, et faire à l'occasion rapport de ses observations et

1. Le 8 mai 1964, par l'adoption de la résolution suivante, la Chambre des communes instituait le Comité spécial de la défense:

CHAPITRE I—COMITÉ SPÉCIAL DE LA DÉFENSE

QUATRIÈME RAPPORT

Le Comité spécial de la défense a l'honneur de présenter son

Jeudi 1^{er} octobre 1964

QUATRIÈME RAPPORT À LA CHAMBRE

MERCREDI 17 juin 1964

Le Comité spécial de la défense a l'honneur de présenter son

TROISIÈME RAPPORT

1. Au cours de l'étude que le Comité a faite du bill C-90, on a entendu des témoignages au sujet des répercussions que la réorganisation des forces armées pourrait avoir sur les besoins en effectifs des forces armées et du ministère de la Défense nationale. On a allégué que, par suite des changements apportés, les forces armées pourront réduire leur effectif militaire de quelque 10,000 hommes au cours des prochaines années. Il se peut que la réduction du personnel civil soit beaucoup moindre, mais on n'a pu fournir de chiffres exacts à ce sujet.

2. On a signalé que la plus grande diminution proviendrait de l'usure normale. On a aussi reconnu que les forces armées doivent maintenir un juste équilibre entre l'âge et les aptitudes. Pour réaliser cet objectif, il faudra poursuivre le recrutement et mettre du personnel à la retraite bon gré, mal gré. On a estimé à 2,000 le nombre de ces personnes. Il faut y ajouter quelque 500 membres d'équipages d'avions, qui ont déjà été avisés de leur libération éventuelle.

3. Bien que, d'une façon générale, le Comité ait approuvé les prestations de retraite qui figurent en appendice aux *Procès-verbaux et témoignages* du fascicule n° 2, en date du 28 mai 1964, il recommande en outre:

- a) Que le recrutement se poursuive afin que les services puissent compter un nombre suffisant de personnes compétentes qui assurent l'excellence du fonctionnement des forces armées.
- b) Que, dans les grades, compétences et groupes d'âges où une réduction de personnel se révèle nécessaire, on s'efforce le plus possible de déterminer quelles sont les personnes qui désirent prendre leur retraite. Cette mesure permettra à ces personnes d'être libérées tout en jouissant des avantages prévus et aussi aux forces armées de restreindre le nombre des libérations forcées chez ceux qui veulent demeurer dans les services armés.
- c) Que ceux qui prennent leur retraite reçoivent des directives et des conseils, sur demande, afin que ceux qui désirent employer leurs compétences dans des établissements civils reçoivent toute l'aide et tout l'encouragement possibles.
- d) Que la question des employés civils déplacés, dont le cas est actuellement à l'étude par la Commission du service civil et le Conseil du Trésor, soit réglée rapidement, compte tenu des services spécialisés qu'ils ont rendus et des prestations comparatives qui sont prévues pour les militaires qui doivent prendre leur retraite malgré eux.

Un exemplaire des *Procès-verbaux et témoignages* relatifs auxdites questions a été déposé le 10 juin 1964, en même temps que le deuxième rapport du Comité, et il est enregistré à titre d'appendice n° 3 aux *Journaux* de la Chambre.

Respectueusement soumis,

Le président,

DAVID G. HAHN.

* * * * *

DAVID G. HAHN.
Le président,

Le Comité a étudié le bill C-90, Loi modifiant la loi sur la défense nationale, et il est convenu d'en faire rapport sans modifications. Un exemplaire des procès-verbaux et témoignages relatifs à ce bill (fascicules n° 1 à 6) est annexé au présent rapport.

DEUXIÈME RAPPORT

Le Comité spécial de la défense a l'honneur de présenter son
MERCREDI 10 juin 1964

DEUXIÈME RAPPORT À LA CHAMBRE

* * * * *

(Ce rapport a été agréé le même jour).

D. G. HAHN.
Le président,

Respectueusement soumis,

2. Qu'il lui soit permis de siéger pendant les séances de la Chambre.

1. Qu'il soit autorisé à faire imprimer les documents et témoignages dont il donnera la publication et que l'application de l'article 66 du Règlement soit suspendue à cet égard;

Le Comité recommande:

PREMIER RAPPORT

Le Comité spécial de la défense a l'honneur de présenter son
MERCREDI 20 mai 1964

PREMIER RAPPORT À LA CHAMBRE

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ROGER DUHAMEL, M.S.R.C.
IMPRIMEUR DE LA REINE ET CONTRÔLEUR DE LA PAPETERIE
OTTAWA, 1965

SESSION 1964-65

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présentées par
M. DAVID G. HAHN — Président

DÉFENSE

les questions relatives à la

étude

CHAMBRE DES COMMUNES

de la

COMITÉ SPÉCIAL

du

RAPPORTS

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SESSION 1964-65



HOUSE OF COMMONS CANADA

SPECIAL STUDIES

prepared for the

SPECIAL COMMITTEE

of the

HOUSE OF COMMONS

on

Matters Relating to

DEFENCE

SUPPLEMENT 1964-65



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SUPPLEMENT 1964-65

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1965

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CANADIAN DEFENCE POLICIES SINCE 1867

By: JAMES EAYRS

From Confederation to the Great War

In the sense that necessity is the mother of invention, defence may be counted among the fathers of Confederation. The urgent need to protect the Provinces of British North America from hostile military invasion by the United States, and the belief that this might be better accomplished through their federal union, were uppermost in the minds of Macdonald, Cartier, Galt and the other statesmen who conceived and carried through the project of the Dominion of Canada.

The defence of the Dominion was at the outset in the hands of the Imperial Government at Westminster, and in those of the more than 15,000 officers and men of the British Army garrisoned in Canada. To-day's observer, accustomed as he is to the spectacle of newly independent nations attempting with varying degrees of success to rid themselves of the military presence of their former rulers, might conclude that the objective of the Canadian Government in the immediate post-Confederation years was to expel the British Army from its territory. He would be wrong. It was the British Government, stretched then as now by its far-flung commitments on the continent of Europe and the perimeter of Empire, which wanted to bring its troops back home; the Canadian Government just as determinedly wanted them to stay. "It will be a century," Macdonald wrote in 1869, "before we are strong enough to walk alone." Be that as it might be, the British Government had no intention of waiting for a century, or even a twentieth of a century. By the end of 1871 British garrisons remained only at Halifax and Esquimalt; these were withdrawn in 1905.

Canadian defence was now in the hands of the Canadian Militia. The Militia, however, continued to be in the command of a British officer. In 1874 the post of General Officer Commanding was created, to be occupied by an officer "holding the rank of Colonel, or superior rank thereto in Her Majesty's Regular Army". Though the Canadian Government could in theory exercise a controlling part in his selection, in practice it had to be content with whoever the War Office decided to send out. The rationale of the procedure was that it would bring a fresh eye to the strategic problems of defending Canada from the United States and, more importantly, would keep defence out of the arena of domestic politics. The rationale of the system led ultimately to its downfall. Two General Officers Commanding—Major-General E. T. H. Hutton (1898-1900) and Major-General the Earl of Dundonald (1902-1904)—were removed from their posts by the Laurier Government for taking their military duties too seriously. Thereafter military affairs were vested in a Militia Council, composed of the Minister of Militia and Defence, and the Deputy Minister, together with the incumbent of the newly created post of Chief of the General Staff, and his leading Staff Officers. The principle of civilian supremacy had been vindicated, albeit at the expense of military efficiency.

During this period (1867-1914), the Canadian Government resorted to the use or threat of military force on four occasions. Two—the despatch of a volunteer militia force of not quite 1,000 men to the Red River in 1870, and the nearly 8,000 members of the expedition sent into the North-West in 1885—were to put down rebellions against the established civil power. Another—the

Yukon Field Force of some 200 volunteers despatched in 1898—was to show the flag to prevent American incursions from Alaska. The remaining venture was the provision of troops for Imperial service in South Africa in 1899-1900. The British cause against the Boers was not one with which Laurier at first found himself in sympathy; he no more wished to despatch Canadian troops to Cape Town than Macdonald, fifteen years earlier, wanted to send them to the Nile "to get Gladstone & Co. out of the hole". But the pressure from English-speaking Canada to do something in aid of Empire was too intense. With his Cabinet divided and the country no less so, Laurier's policy was designed above all else to avoid further division. His compromise was to authorize a volunteer force, no greater than 1,000 men, and to pay its transportation costs to and from South Africa. This force having been despatched without incident, a second contingent was sent later, as well as the private army raised by and named after Lord Strathcona, the High Commissioner in London.

In 1898, the first of a series of navy laws passed by the German Reichstag inaugurated that *Flottenpolitik*, or naval rivalry, between Germany and Great Britain which was ended only by the Battle of Jutland. To the Dominions the Admiralty turned for aid, with varying results. Australia and New Zealand, deeming the British cause to be their own, responded by subscribing cash for dreadnoughts for the Royal Navy. The Canadian Government, its public divided as during the Boer War, was compelled to equivocate. Laurier's position was that, contrary to what he believed to be the biased information put before the British public by the military, there was no emergency to warrant so drastic a departure from the principles of responsible government. If there were naval preparations to be made, they would take the form of a Canadian Navy, not of Canadian contributions to a Grand Imperial Fleet. A Naval Bill embodying this policy was placed before Parliament in November 1909, and passed, over the bitter opposition of Borden's Conservatives, the following year. Before any of its provisions could be implemented, the Laurier Government was defeated in the General Election of 1911. Borden promptly laid down a new naval policy, based on the principle of an emergency contribution. He asked Parliament to approve an appropriation of \$35,000,000, to provide the Royal Navy with three additional dreadnoughts which the First Lord of the Admiralty—Winston Churchill—had assured him were vital to the security of the Empire. The Canadian Senate, with its Liberal majority, refused to pass the Bill. The declaration of war in August 1914 found Canada with hardly any Navy of its own, and having made no contribution to imperial naval defence.

The Great War

World war was unforeseen in Canada, as most everywhere else. It being, however, the duty of military planners to think about the unthinkable, some attention had been given to the problem of general mobilization and the despatch of a Canadian Expeditionary Force for service overseas in the event of a European conflict in which Britain was involved. Unfortunately these plans were neglected, or overridden, by Borden's Minister of Militia, Sir Sam Hughes, and it was as much in spite of his zealous and frenzied improvisations as because of them that the first Canadian contingent of 33,000 men (and 7,000 horses) arrived at Plymouth Hoe in the middle of October. They were followed, during the next four years, by nearly 400,000 more. Over 60,000 were killed; among the survivors there must have been some, mutilated in body or mind, who envied the dead.

Had such prodigious sacrifice been foreseen, a more careful canvassing of the *pros* and *cons* of Canadian belligerency might have conceivably taken place, the doctrine of the indivisibility of the Crown notwithstanding. In fact, there was no canvassing at all. Both parties and both races—Canadians and *canadiens*

—accepted without question that British belligerency was a sufficient *casus belli* for the Dominion. "To-day we realize that Great Britain is at war", Laurier declared on 4 August, "and that Canada is at war also".

There was no hesitation, either, in placing Canadian troops under British—or Anglo-French—strategic direction. But as the blood-letting in Europe got under way, it became evident that this confidence had been tragically misplaced. When the senior Canadian officer overseas protested against Canadians being thrown into the line for the attack on Givenchy without adequate planning and so soon after the ordeal at Ypres, he was, as he wrote, "rapped over the knuckles for doing so". A memorandum of the Department of Justice, dated January 1916, gave as its opinion that Canadians serving in the Expeditionary Force overseas were as much the responsibility of the Dominion Government as Canadians serving in the militia at home, and provided the basis for the creation later that year of a Ministry of Overseas Military Forces from Canada in the United Kingdom. But in the last analysis the fate of Canadians in the line depended upon officers of sufficient prestige and seniority imposing their will upon the High Command. Arthur Currie did his best.

It was easier, indeed, to exert influence upon grand strategy. Lloyd George was himself engaged in a running battle with his generals, and welcomed Dominion Premiers like Borden as his allies. From his strong, if anomalous, position as a member of the Imperial War Cabinet, the Canadian Prime Minister was able to shape Allied policy for the overall conduct of the war and, to even greater effect, for the outlines of the approaching peace.

No decision of the Canadian war effort had more far-reaching effects than Sir Robert Borden's pledge of 1 January 1916 to double the authorized strength of the men in uniform. This promise to place 500,000 Canadians under arms, made solely on the Prime Minister's initiative and apparently with little consideration, led straight to the conscription crisis of 1917. In May of that year Borden returned from Europe convinced, as he told the House of Commons, "that the voluntary system will not yield further substantial results". The Military Service Bill broke party lines in its passage through Parliament, French-speaking Conservatives voting against it, English-speaking Liberals voting in favour. Some of the latter Borden took into a new coalition Government which, with the aid of unprecedented (and, many argued, unjustifiable) electoral manipulation, was returned to power in the General Election of 1917. The Archbishop of Quebec wrote to Borden in a vain attempt to dissuade him from imposing conscription in the Province: to do so would precipitate "racial and religious war". His warning was both timely and accurate. The ensuing disorders might not have been so violent nor so widespread had the conscript system there been conducted with tact and sensibility. As it was they cast a long and sombre shadow on the military affairs of the Dominion for years to come.

From the Great War to the Great Depression

In 1919 Canadians turned away from Europe, leaving behind their dead. However misguided it might appear to those of a later generation drawn as their fathers had been into "the vortex of militarism", isolationism in Canada was a natural response to the four-year ordeal on the Western front. The Great War remade the map, but left unchanged the scale and the projection. The world was still wide. It had been made safe not, to be sure, for democracy—that ambition, one could tell even in 1919, had not been fulfilled—but at any rate for Canadians. These fortunate few inhabited, in the words of their delegate to the League of Nations, "a fire-proof house, far from inflammable materials".

In such a world, in such a house, military preparations were bound to fall into disfavour and defence policy dwindle into inattention. Whence came

the threat for which such preparations were needed? Where was the enemy against which defence policy should be made? "There is no world menace", declared the leader of the Opposition during a debate on the militia estimates in 1920. "The Minister says that this expenditure is needed for the defence of Canada—defence against whom? There is no answer; there is no answer to be made". The Minister's advisers in fact had an answer: they assumed that the United States was the enemy, and it figured as such in their strategic planning. But they did not dare, or care, to divulge this assumption to the politicians.

Neither Conservatives nor Liberals—nor, for that matter, most of the Progressives—wanted to do away with the armed forces altogether. It was desired that they be made efficient and economic, not necessarily in that order. In the climate of those times the Army—voluntary militia and permanent force—was bound to fare the worst, and did. The amount voted for its upkeep by successive Governments throughout the 1920's grew less and less. Hardly any new equipment was procured, the training of reserves became a mockery. What did Canada need an army for, other than render occasional assistance in aid of the civil power? And there were those who doubted it was needed even for that. "I say to this Government", cried a Progressive M.P. in attacking a proposal to amend the Militia Act to authorize an increase in the strength of the Permanent Force from 5,000 to 10,000 men, "trust the people! The heart of the Canadian people is as sound as our No. 1 Hard Manitoba wheat".

The Navy, at first, fared a little better. Canada entered the war, as noted, with no navy to speak of, and ended it with not much more. In 1919 the Borden Government invited Lord Jellicoe to advise it on a long-range naval policy, but even the most modest of his proposals was thought to be too expensive. When the Minister of the Naval Service, sure of his ground, put a compromise programme of \$5 million before his party, the caucus howled him down. In the event the Government settled for two destroyers and a cruiser, commissioned in the R.C.N. in December 1920. Even this modest fleet was thought excessive by the incoming Liberal Administration a year later, and one of Mackenzie King's first acts of national policy was to tell the Navy it had to get by on \$1.5 million annually. This was not enough to permit any kind of sea-going force, and the Navy was in fact reduced to a shore establishment for the next decade. Only the Navy League objected.

In November 1918 Canada had no air force, but she had airmen—the official figure of nearly 23,000 is far short of those Canadians who served in the Royal Flying Corps and the Royal Naval Air Service. Canada's airmen had more things working for them as a permanent post-war force than did the two established services. The R.C.N. was handicapped by its inconspicuous part in the war effort, by the high capital costs of a sea-going fleet, by the threat to Canadian autonomy posed by strategic doctrines favoured by the Admiralty, above all, by the divisive effects of naval policy upon public opinion. The Army's future was placed in doubt by the determination of most of those who served to turn their backs upon the ordeal from which they had just emerged and to have as little to do as possible with military life in future. But for those who fought in, and survived, the war in the air, aviation opened up glittering prospects of a new and exciting post-war career. Far more than the other professions of arms, military aviation seemed clearly adaptable to peacetime service, above all in Canada where exploring, prospecting, fire-fighting, transporting goods and passengers, were only the most obvious uses to which a nation's air power might be put when not in combat. An Air Board, designed to formulate and then to execute the Dominion's aviation policy, was constituted in June 1919; in February 1920 it recommended the creation of a Canadian Air Force, whose members would combine training for wartime flying with "useful civil duties". With the authorization, in 1923, of the prefix "Royal", the R.C.A.F. came into being. But the glamour attending the birth

of the junior service did not cause it to escape the malnutrition from which all branches of Canadian military life continued to suffer during the 1920's.

The decision taken in 1922 to replace the two government departments previously concerned with defence (Militia and Defence, and Naval Service) by a single Ministry of National Defence met with everyone's approval. But the efficiency of administration expected of the new Department was delayed by internal rivalry, principally that between the former Chief of the General Staff, who under the new organization became Chief of Staff, Department of National Defence, and the Director of the Naval Service. The latter officer, Commodore Hose (now Rear Admiral, ret.), did not take kindly to the concept of military hegemony in naval matters, and worked tirelessly to frustrate it, with the result that in May 1927 an Order-in-Council abolished the post of Chief of Staff, Department of National Defence, restoring that of Chief of the General Staff; a further Order-in-Council of the following year changed the title of the Director of the Naval Service to that of Chief of Naval Staff emphasizing that the government's principal military and naval advisors were equal in status. The R.C.A.F. remained under military jurisdiction until 1938, when it acquired autonomy and a Chief of the Air Staff.

Apart from employing small detachments of troops in aid of the civil power, the Government made no use of its armed forces in military operations from the time of the Armistice to the outbreak of the Second World War. On only one occasion was it called upon to do so; this was in 1922, when the British Government (really Lloyd George and Winston Churchill) issued their celebrated appeal to the Dominions for troops to help hold the line against Mustapha Kemal at Chanak. Though the leader of the Opposition, Arthur Meighen, thought that Canada's response to this appeal should have been "Ready, aye ready; we stand by you", the Liberal Government (and its 65 Progressive supporters) were neither ready nor willing.

Canadians, it has been observed, are an unmilitary people. That being the case, it is fitting that the most important assignment carried out by the Canadian military during the years between the two World Wars was of an unmilitary nature. The Department of National Defence created and administered throughout the Depression the system of work relief camps to which able-bodied, single, homeless, unemployed men might at their own request be admitted and cared for, while engaged in useful labour. The scheme was largely the inspiration of the then Chief of the General Staff, Major General (now General, ret.) A. G. L. McNaughton, to which it owed what success it enjoyed. One misconception concerning the camp system persists to this day, and deserves to be dispelled. It is said that the camps, being run by the Department of National Defence, were operated on strict military lines, and that military discipline was imposed upon the inmates. That is untrue. In fact the Department, conscious of unfavourable publicity, bent over backwards to avoid creating a military atmosphere. But the camps became a symbol of all that was thought hateful of the Bennett Government, and were very bitterly attacked. The image of the Canadian military, which was not all it might have been, suffered further as a result of its association in what was intended to be a humanitarian enterprise. In his campaign preceding the General Election of 1935, Mackenzie King promised to abolish the camps if returned to power; he was, and he did.

The Rise of the Dictators and the Road to War

With very few exceptions—notably J. W. Dafoe of Winnipeg—Canadians whether in public or private life failed to recognize Fascist Italy and Nazi Germany for what they were before it was too late. Totalitarianism was thought to be merely an aggravation of that *malaise* from which Europe traditionally suffered; there was little if any suspicion that it might be a distinctively twen-

tieth-century phenomenon arising from the tensions and insecurities of twentieth-century man. The fascist apparition was no new menace for which the old responses would no longer suffice, but a rebirth of the intrigues, the rivalries, the nationalisms of prewar European diplomacy. Thus it required no special explanation, created no new problems, needed no exceptional precautions.

To this misinterpretation was joined a profound distrust of the one method which might, in retrospect, have deterred the dictatorships from their more reckless aggressions. Collective security—the pooling by governments of their capacity to wage armed and economic warfare—was anathema to every Canadian administration of the inter-war period, but it was particularly distasteful to the administrations over which Mackenzie King presided. He was equally suspicious of the institution through which collective security might have been exercised. He referred to it as “an international war office”, and never lost his conviction that, as he remarked to Churchill in May 1944, if there had been no League of Nations there would have been no war among the nations.

Given these attitudes, it was inevitable that the Canadian Government reacted coolly to the attempt to organize economic sanctions against Mussolini when his troops invaded Ethiopia. “No interest in Ethiopia, of any nature whatever, is worth the life of a single Canadian citizen”. So spoke Ernest Lapointe from a platform in Quebec City in September 1935, with Mackenzie King sitting approvingly at his side. When, six weeks later, the Canadian representative at Geneva on his own initiative proposed the extension of sanctions to oil (the commodity on which Mussolini’s legions most urgently depended), his Government, outraged, repudiated his action. Had it not done so, the Prime Minister told the House of Commons early in 1936, “the whole of Europe might have been aflame”.

In the summer of 1937, Mackenzie King visited Hitler in Germany. It was not a wholly useful confrontation. It was true that the Canadian Prime Minister did not let the opportunity pass of stressing in Berlin what he had felt unable to state in London, namely, that in the event of “a war of aggression, nothing in the world would keep the Canadian people from being at the side of Britain”. Yet so great were the Führer’s powers of mesmerizing impressionable visitors that the Canadian Prime Minister returned from Nazi Germany more than ever convinced that a war caused by its aggression was unlikely. “Of this I am certain”, he reported to the Canadian people, “that neither the governments nor the peoples of any of the countries I have visited desire war, or view the possibility of war between each other, as other than likely to end in self-destruction, and the destruction of European civilization itself.” That the destruction of European civilization was precisely the object of the man he had so recently talked with in the Reichskanzlei was a thought unlikely to have crossed the mind of the Canadian Prime Minister; for, as was remarked of him in a different connection, “Mr. King never quite got it into his head during his economic studies at Toronto and Harvard that our civilization is dominated by carnivorous animals.”

Upon these assumptions and with these assessments, the Government shaped its external and defence policies along the road that was to lead to war. In external affairs the policy was appeasement, and support for appeasement. (The word had not, in those days, taken on its contemporary invidious significance.) In defence, the policy was cautious rearmament. It might be thought remarkable that given the climate of Canadian opinion, and the peculiar intelligence of the outside world with which external policies were fashioned, any sort of rearmament was embarked upon. Perhaps it was. Yet it should be remembered that as a consequence of the neglect of the 1920s and the further depletion of the depression years, the defence establishment had been allowed to deteriorate to the point of virtual decrepitude. General McNaughton’s final act as Chief of the General Staff was to compose a lengthy memorandum

solemnly warning the Prime Minister that "the situation...with respect to equipment and ammunition is one that can be viewed only with the gravest concern". The Mackenzie King Government, which inherited McNaughton's warning from the preceding Bennett administration, was disposed to agree. Total expenditure on defence rose from \$22,305,299 in 1934-35 to \$27,378,541 in 1935-36, and to \$34,799,192 in 1938-39. Equipment and training were improved accordingly.

But what was done fell far short of what might have been done and of what (it is possible to argue in retrospect) ought to have been done. The Prime Minister's continuing suspicions of "Downing Street domination" beset and bedevilled defence preparations involving co-operation with the United Kingdom. Attempts by British officials to plan for wartime defence production and supply in advance of the outbreak of war were rebuffed, as was the Air Ministry's proposal in 1938 for training R.A.F. pilots and aircrew in Canada.

The Second World War

In contrast to the automatic declaration of belligerency twenty-five years earlier, Canada entered the Second World War a week after the declaration of war by the United Kingdom. The delay was useful in allowing the Prime Minister to keep his repeated promise that "Parliament would decide" whether Canada would go to war or not, in underlining the Dominion's right to neutrality (not that there was much neutralist sentiment), and not least in allowing certain materials of war to be hustled across the border from the United States before the formal state of belligerency could invoke the restrictions of the Neutrality Acts.

A further contrast was that from the outset of the Second World War there loomed insistently and obsessively the question of conscription. Mackenzie King's first major policy statement of the war had been to assure Parliament and the nation that "the present Government believe that conscription of men for overseas service will not be a necessary or an effective step. No such measure will be introduced by the present Administration". In April 1942 the Government took the unusual step of asking the electorate, by means of a national plebiscite, to release it from this commitment; the affirmative response provided the mandate, but, as Mackenzie King noted in his diary, "the returns from Quebec were quite depressing" in that French Canada had voted strongly against the question put to it. The Prime Minister concluded "that to keep Canada united, we would have to do all in our power [to keep] from reaching the point where necessity for conscription for overseas would arise".

This consideration, more than any other, caused the Government to scrutinize more carefully, perhaps, than any of the Allies, the military and political implications of those operations in which Canadian troops were asked to participate. Unlike the First World War, in which the Canadians had been ordered into action against the better judgment of senior Canadian officers, there developed in the Second a settled procedure of political consultation before units of the Canadian Army might be committed to military operations. The War Office (or the appropriate British or Allied authority) was to consult with the General Officer Commanding the Canadian Army overseas; this officer might use his own discretion in minor projects of a temporary nature, but if he was in any doubt at all he was expected to consult with the Canadian Government at Ottawa. This procedure came into conflict with the need for the utmost secrecy concerning the military plans involved, but it prevailed notwithstanding.

In the event it proved impossible for the Government to refrain from conscripting men for service overseas. An order-in-council providing for the

immediate drafting of 16,000 N.R.M.A. men was approved on 23 November 1944; of these, some 12,000 were sent overseas, some 10,000 reached Europe, some 2,500 saw action. The ordeal out of which this decision emerged saw the resignation of two Cabinet Ministers (Ralston because he thought the proposal did not go far enough, Power because he felt it went too far) and the bringing of pressure to bear on the Government by the Army High Command. These dramatic events were to have their effect upon the relations of civilian and military public servants long after the German surrender on 5 May 1945.

The Imperial War Cabinet, which had provided the Dominions with a voice in the higher direction of war during the Great War, was not revived during the Second World War. That it remained dormant, despite the occasional efforts of the Australians and others to bring it to life, was largely the result of the refusal of the Canadian Prime Minister to participate. Mackenzie King was convinced, as he remarked in both Ottawa and London in 1941, that the existing system of consultation, based mainly on the cables which flowed in increasing number between the Prime Ministers of the British Commonwealth, was preferable to any wartime gathering of Prime Ministers in London where they would lose touch with their Cabinet colleagues and their publics (and where, he might have added, they would have been too much exposed to the expertise of the British bureaucracy). Another reason for his not wanting to become a member of an Imperial War Cabinet was that he felt it much more important to remain in North America for close consultation with the President of the United States. His friendship with Roosevelt was instrumental in bringing about that historic confrontation at Ogdensburg, N.Y., from which the Permanent Joint Board on Defence was born, and the no less significant Hyde Park Agreement of April 1941 which had the effect of wiping out the Canada-U.S. border for purposes of defence production.

But after the United States itself entered the war, and Churchill and Roosevelt began to forge their own special relationship, the favoured position of Canada in the councils of the wartime Allies not unnaturally deteriorated. Inevitable as this deterioration appears in retrospect, the Canadian Prime Minister did not take kindly to it; his diary and his correspondence are filled with expressions of his annoyance at Canada's exclusion from this meeting or that conference, or the failure of more dominant figures to consult as fully as he felt they ought to have done. Much of Canada's diplomatic energy—perhaps too much—was at this time (1943-45) diverted into endeavours to attain what its Government regarded to be appropriate recognition for its war effort and, even more important, appropriate representation on the various institutions which had come into being to conduct wartime strategy and plan for the post-war future.

In the course of the war, the Dominion's own institutional machinery underwent significant modifications. The centralization of authority under a single Minister of National Defence responsible for all three Services quickly proved under the pressures of war too great to be borne by any one man, especially after the complex arrangements involved in the British Commonwealth Air Training Plan were added to the load. New portfolios—a Minister of National Defence for Air, a Minister of National Defence for Naval Services, and an Associate Minister of National Defence—were accordingly created in 1940, together with the new Department of Munitions and Supply presided over throughout the war by C. D. Howe. These Ministers, together with the Prime Minister and the Minister of Finance, comprised (occasionally with others) the personnel of the War Committee of the Cabinet, an inner grouping of key figures which became pretty much the effective policy-making and administering body of the Canadian war effort. Not the least important development of the wartime machinery of government was the introduction of certain procedures

(such as the taking and circulating of Cabinet minutes) designed to make cabinet business more expeditious.

Wars are seldom beneficial to legislatures, and during the Second World War the influence of the Canadian Parliament upon policy dwindled to an all-time low. A certain waning of its influence was doubtless inescapable, but the prestige of Parliament suffered unnecessarily because of the Government's addiction to orders-in-council. In the United Kingdom, Churchill was criticized for treating Westminster too cavalierly, and devised secret sessions partly in order to offset this criticism. The device of a secret meeting of the House of Commons was employed once in Ottawa (on 24 February 1942); it was not, in the Prime Minister's judgment, an unqualified success. "There seemed," he wrote afterwards, "to be a general acceptance of the view that it was well not to unduly arouse the fears of the public by having a further Secret Session". Public sessions continued to leave much to be desired. A member of the War Committee of the Cabinet, C. G. Power, recalled in later years that "members learned of decisions from their seats in the House, in many instances long after action had been taken. If they objected, they were told that there was a war on".

Planning the Post-War future

Mackenzie King did little to encourage public discussion of what kind of policies and institutions were needed to keep the peace and promote the prosperity of the post-war world. "The more public discussion is diverted to questions about what is going to be the attitude of this country and that country at the peace table and in the post-war period", he remarked in the House of Commons in March 1943, "the less the country will be impressed with the fact that this war itself is not yet won". His own thinking on the subject underwent important, though possibly not fundamental, changes. He remained (as noted above) sceptical of collective security, at least of the League of Nations variety, and hostile to the notion that force would be needed to restrain the ambitions of future aggressors. But he conceded that "where a mad man is rushing around a community with a shot-gun or a sword the first step is to relieve him of the weapons he carries". His advisers were prepared to go a little further. Mr. Lester Pearson, then (1944) Minister-Counselor of the Canadian Embassy at Washington, who as a young diplomat at Geneva had witnessed with dismay the Government's sabotaging of collective security in 1935, was a more staunch defender of the method than his Prime Minister: "That collective system which was spurned in Peace", he remarked in a speech to the Canadian Club of Toronto, "has proven to be our salvation in war".

The Canadian Government gave its blessing—it was hardly in a position to do otherwise—to that system of post-war international organization worked out by the Great Powers at Dumbarton Oaks in the fall of 1944, with its Security Council on which those Powers would enjoy a commanding influence safeguarded by the veto. But it was by no means ready to acquiesce in what Mackenzie King described in Parliament (4 August 1944) as "the simple division of the world between great powers and the rest". Its own conception was well set out by the Prime Minister in these words:

The great powers are called by that name simply because they possess great power. The other states of the world possess power—and, therefore, the capacity to use it for the maintenance of peace—in varying degrees ranging from almost zero in the case of the smallest and weakest states up to a military potential not very far behind that of the great powers.

In determining what states should be represented on the (Security Council with the great powers, it is, I believe, necessary to apply the functional idea. Those countries which have most to contribute to the maintenance of the peace of the world should be most frequently selected. The military contribution actually made during this war by the members of the United Nations provides one good working basis for a selective principle of choice.

This important statement provided the rationale for two key Canadian concepts often reiterated during the post-war period: the functional principle of United Nations activity (leading, at San Francisco, to the inclusion as integral parts of the United Nations system such organs as the Trusteeship Council and the Economic and Social Council), and of Canadian representation on such organs; and the notion that Canada, while not a Great Power, was most certainly not a small power, and might therefore be properly referred to as a Middle Power, with the prerogatives and privileges of Middle Powerdom. Elaborated with considerable force and subtlety by Canadian representatives, these principles made their mark upon the Charter, and secured for Canada a more important role (e.g., as a member of the U.N. Atomic Energy Commission) than the Big Three had ever envisaged on its behalf.

From UN to NATO

The commendable thing about the functionalist approach was that it linked power to performance, status to stature: a nation unprepared to make the effort could not expect to remain a member in good standing of the international establishment. But by this criterion the very originator of functionalism seemed headed, during the immediate post-war years, for an outsider's role. For all the talk, during the war itself, of Canada's part in what Mackenzie King called "the new world order", it now seemed as if the nation were returning to the discredited isolationism of the 1930s. Thus the Canadian Government declined to take part in the military occupation of Germany. Such abnegation of responsibility could hardly help the Government's claims upon Middle Power privileges, as its High Commissioner in London noted in January 1946. "Addison (Secretary of State for Dominion Affairs) raised the question of our membership in the two principal councils in the United Nations Organization. I stated what I believe to be the Canadian point of view but I could not help thinking that our position would be very much stronger if at the same time we were not planning to limit our commitments and, indeed, avoid our obligations in connection with such problems as the occupation of Germany. We are now planning to withdraw our forces this year which is a source of very great embarrassment to the U.K.". Within the next two years, Canada refused to serve on United Nations commissions in Kashmir and Palestine (Mr. Justice I. C. Rand was a member of the Palestine Commission but as an individual not acting on governmental instructions); membership on the U.N. Temporary Commission on Korea was accepted only at the urgent persuasion of President Truman, and then with great reluctance and misgivings.

These withdrawals from reality signified not so much the state of mind of the Canadian people as the increasingly idiosyncratic conduct of their affairs by their aging (and ailing) Prime Minister. Mackenzie King's colleagues and advisers did all they could to keep the damage to a minimum. Nor were they unsuccessful. From them came the proposal, suggested publicly by an official of the Department of External Affairs as early as August 1947, that Canada might join with other nations in "creating new international political institutions to maintain peace", later elaborated in the suggestion that the two North American nations might join with the members of the newly created

Western European Union in some sort of trans-Atlantic security pact. From these beginnings the North Atlantic Treaty Organization emerged two years later.

Canada's military commitments to NATO, though on a far lesser scale (even allowing for discrepancies in population and resources) than those of the United States, were no less whole-hearted. Canadians had more reason than many of the Western democracies to understand how very slim had become the hope that international politics might in future witness that unity of the great powers assumed in the Charter of the United Nations. Disclosure late in 1945 of Soviet espionage in the Canadian capital revealed, at least to members of the Government, the reckless perfidy of Marshal Stalin: if public disillusionment did not come until the extinction of liberal institutions in Czechoslovakia in February 1948, it came then with sobering clarity. "The Soviet Union", remarked the Minister of National Defence a few months after the Czech tragedy, "has flouted war-won friendships, obstinately obstructed every move to arrive at understanding, and promoted chaos and disorder and the darkness of the iron curtain . . . It has produced an attitude in Canada towards defence which is quite different from any that we ever had before in peacetime". With full public backing the Canadian Government made its contribution to the military build-up in Western Europe (though opinion wavered in places when the distasteful prospect of rearming West Germany loomed before it in 1954).

Misgiving was not confined to the left wing when, in that same year, the U.S. Secretary of State enunciated what came to be known as the doctrine of "massive retaliation". The notion that the great deterrent to Soviet thrusts into Western Europe would not in future consist of NATO's conventionally armed troops with their screen of fighter aircraft and their supporting navies but rather of the Strategic Air Command of the United States, ready at a moment's notice to drop its continent-searing weapons upon a hundred or more of the enemy's centres of population and industry, did not sit well with many of Washington's allies. Of these, the Canadian Government was among the first to disclose its alarm and apprehension. In a series of published statements and speeches (and doubtless in many confidential despatches which were not published), the Secretary of State for External Affairs, Mr. Lester Pearson, pointed out that massive retaliation, so far from deterring conventional assault, was more likely to encourage it: neither conscience nor common sense was likely to countenance the certain death of a hundred or more million innocents, at least half of whom lived in the countries under attack, as a reprisal against the foray of a Soviet conventionally armed division. Unless the West was to remain paralysed by the awesomeness of its own retaliatory power, a new strategy had to be devised, a strategy fitting punishment to crime, a strategy providing the proper proportions of force. "Except in the event of a reciprocal spasm of mutual annihilation", Mr. Pearson wrote in a book published in 1955, "the free world's force should be used only for limited political objectives, of which the chief will be to deter aggression; or if it breaks out, to localize it, defeat it, and prepare the way for a peace settlement. This is something different from the doctrine of massive retaliation".

So it was. But there remained a great gulf fixed between the objectives urged by NATO's military planners and the actual number of armed divisions that the member governments were ready to put at their disposal. The Alliance yielded to the temptation to rely on nuclear fire-power to redress the balance between its own forces and those of the Soviet Union (placed by the conventional wisdom of the day at 175 divisions). Conforming to this doctrine, the Canadian Government accepted in 1958 a nuclear role for the R.C.A.F. air division in Western Europe. Reassuring statements about "tactical nuclear

warfare", "strike-reconnaissance" or "battlefield interdiction" did not conceal from the sceptical that the discredited strategy of massive retaliation had been continued in all but name, nor that Canada had become a party to its continuation.

Though the Government had taken on a nuclear role, it did not consent to take on nuclear weapons. The reasons for its refusal are complex, not to say controversial: they have to do with the divided state of Canadian public opinion; to the presence within the Cabinet (in the person of Mr. Howard Green) of an influential and persuasive advocate of delay on the grounds that too hasty acceptance of nuclear weapons might prejudice the prospects of disarmament; not least to the then Prime Minister's difficulty, evident in more than atomic affairs, in coming down decisively on one side of a fence or the other. While Conservative Ministers wrestled with their constituencies, their consciences and one another, the Liberals (and New Democrats) stood more or less firmly for atomic abnegation. But in January 1963 there took place a remarkable reversal of opposition policy. Mr. Pearson, in a carefully prepared statement, announced his party's conversion to a nuclear strategy. Canada, he declared, should acquire tactical defensive nuclear warheads for those of its weapons systems requiring them for full efficiency. He claimed that Canada, under the Diefenbaker Government, had already committed itself to a nuclear role: "As a Canadian, I am ashamed if we accept commitments and then refuse to discharge them". Mr. Diefenbaker displayed no shame. "This is not time", he told Parliament on 25 January, "for hardened decisions that cannot be altered". But he was unable to carry his Minister of National Defence, and other members of the Cabinet, any further along the road of procrastination. Amidst a wave of ministerial resignations unprecedented in Canadian political life, the Government was twice defeated on want of confidence motions in the House of Commons. Dissolution came on 6 February.

It would be a rash political scientist indeed who, even today, would venture to state with certainty what effect the nuclear issue had on the outcome of the campaign. With a minority government and less than half of the popular vote (and that less than half by no means a pro-nuclear vote), the new Prime Minister could hardly claim a mandate to usher Canadians over the nuclear threshold. Nevertheless, that is what he had pledged himself to do, and nobody, not even the New Democratic Party, was ready to stop him. Accordingly Mr. Pearson's Government entered into the necessary negotiations with the United States, and by early 1964, after six years of uncertainty and delay, the Bomarc missiles at North Bay and La Macaza were finally equipped with their atomic warheads, as were the R.C.A.F. squadrons based in West Germany. Those based in France, however, had to await approval by the French Government before acquiring nuclear capability; or, failing that, be transferred to a more indulgent jurisdiction than that of General de Gaulle.

War and Peace on the Periphery

That the defence perimeter of the nations calling themselves "the Free World" was by no means confined to Western Europe became evident in June 1950, with the North Korean attack upon the Republic of Korea. Resolutions authorizing the creation of a United Nations command to resist this aggression, and to mobilize the necessary military resources, passed the Security Council only on account of the fortuitous absence of the Soviet representative. The Canadian Government responded by offering, on 12 July, three R.C.N. destroyers, and long-range air transport assistance by the R.C.A.F. It decided, at that stage, not to send troops. But the following month, when R.O.K. and United States forces had been pressed back to the Pusan bridgehead, and

rumours of resort to the atomic bomb had begun to agitate the capitals, the Canadian Government announced its decision to form a specially recruited brigade, the so-called Canadian Army Special Force, to serve in Korea if the possibility of useful service still existed. There was little opposition to this move in Parliament or in the country, the Conservative critics confining their criticism to the fact that it had been necessary to resort to special enlistment in order to raise the requisite number of troops. An advance party of 350 arrived in Korea after the Chinese intervention had created what the U.N. Commander rightly described as "an entirely new war".

By the time it ended in the truce signed in July 1953, 10,587 Canadians had enlisted in the special volunteer force; of these, 3,134 were from the province of Quebec, a proportion slightly higher than that of the population of Quebec to the population of the whole country, while the proportion of French-speaking Canadians in the special force was almost exactly that of French-speaking Canadians to the total population. If, therefore, Canada continued to share with Iceland the doubtful distinction of being the only member of the North Atlantic Alliance not to have introduced compulsory military service, it reflected not so much the unwillingness of any sector of the Canadian community to sacrifice for freedom as the unwillingness of their Government to risk opening the old wounds of the conscription issue.

A year after the truce in Korea, Canada was called upon to undertake another, though different kind of, "police action" in the Far East. This was in Indo-China, where in the aftermath of the collapse of French power before the communist-led forces of the Vietminh, Canada, together with India and Poland, was asked to accept membership on three International Commissions—one each for Vietnam, Laos and Cambodia—created by the Geneva Conference to supervise the working of the armistice agreement. The Canadian Government had not sought these responsibilities; indeed, word of the invitation to participate seems to have come to it as a complete surprise. But, having been asked, the Canadian Government accepted, under no illusions, as its statement of acceptance made clear, "about the magnitude and complexity of the task". Providing personnel, military and diplomatic, for the Truce Commissions placed the Departments of National Defence and External Affairs under considerable strain. A group of army officers were flown in from Korea, and 70 more left immediately from defence headquarters at Ottawa. At any given time during the next few years, the number of Canadians serving with the Indo-China truce commissions was rarely less than 150.

The term "police action", indiscriminately applied to the very different kinds of operations in Korea and Indo-China, obscures more than it makes clear. Police action in Korea was war in the conventional sense: an army in the field sought to impose military defeat upon an armed adversary. Police action in Indo-China was the action of a corps of observers, confined by their mandate (and by their equipment) to investigation and report. The kind of police action in which Canada became involved following the Anglo-French invasion at Suez in November 1956 was something else again. It is easier, perhaps, to state what it was not than what it was. It was not a Korean-type military force. It was not intended to fight the Anglo-French invaders or any other. It was not equipped to fight. It was intended, rather, to exert a pacifying, tranquillizing influence upon the situation into which it was injected, and so help restore peace, order and good government. In this it was successful, but only because the other militarily superior forces in the area were prepared to allow it to be. In the similar operation mounted four years later in the Congo, the United Nations policemen found local authority divided, the situation chaotic, their own mandate confused and their safety imperilled.

Canada's experience in UNEF and UNOC, which brought the country considerable kudos at comparatively little cost, has encouraged strategists

both in and out of arm-chairs to argue that a higher priority among Canadian defence options ought to be given to peace-keeping under United Nations auspices; a small but not uninfluential body of opinion styling itself "positive neutralist" has indeed urged that Canada renounce its old-fashioned military alliances the better to be able to participate in the tasks of para-military police action among that increasingly large number of nations which regard such alliances with suspicion. The present Government has declined to go so far. But it evidently looks with favour upon the idea that Canada might become peace-keeper to the nations, an international policeman on a regular beat. Such an idea is not unworthy, but those who urge it as a policy do well to reflect that in the eyes of those who live in the precinct Canada is not especially well equipped for the job. Gandhi wore a loin-cloth, not a grey flannel suit; his complexion was brown, not white; and it remains at least an open question whether the doctrines of the Mahatma have any relevance in a world in which governments continue to jostle and fight for power. A recent statement of the positive neutralist position argues that while "there still is, and there will be for a long time yet, a contest between East and West, between Communist and Western values", that contest will from now on "be decided not by cold war but by which values win, or lose, the support of the new and uncommitted nations". This is a plausible case, easily argued; but it cannot yet be asserted, as its author asserts it, as a fact of life. Would that it were.

Defending the Continent

Reflections of a very different order are induced by turning to the preparations made or contemplated by successive Canadian Governments to help defend the continent from nuclear attack by the U.S.S.R. Soon after August 1949, when the Soviet Union successfully detonated an atomic bomb, it became evident that its government satisfied all too well the designation of "enemy": it was malevolently disposed towards the West and possessed, henceforward, the means to express its ill-will in a devastating surprise attack. In August 1951, negotiations between Canada and the United States were consummated in an agreement under which the American Government undertook to pay two-thirds of the costs of construction, equipment and maintenance of a chain of radar installations—the so-called Pinetree Line—reaching from Vancouver Island into the Peace River district, down through the northern states of the American prairie, up again into Ontario and Quebec and ending at the Atlantic Coast of Newfoundland. Two other radar chains—the Mid-Canada line and the Distant Early Warning system—were built further north, the former at Canada's expense, the latter (three times more costly) at that of the United States. Their existence brought United States service personnel into the Canadian northlands on an unprecedented scale. Coming and going at will, occasionally imposing its jurisdiction upon Canadians in their own country, the American presence was not well received by Canadian public opinion. Criticism of the early warning system tended to centre on this aspect of sovereignty, neglecting the more fundamental questions of whether its enormous cost was worth incurring in the era of the intercontinental missile (which it could neither detect nor intercept), or better expended upon forces designed to deal with brush-fires rather than with the apocalypse.

A similar preoccupation with sovereignty rather than with survival seemed to attend Canadian reactions to the creation in 1958 of the North American Air Defence Command (NORAD). The command of NORAD, charged with the defence of North America against bomber attack, was assigned to a U.S. officer. But his deputy was a Canadian, and while the American commanders came and went, the deputy, in the person of Air Marshal Roy Slemon, R.C.A.F., stayed at the job from the outset, acquiring in the process a store of expertise and experience assuring him of the respect and confidence of senior American

officers. His prestige seemed undiminished even after the Canadian Government refused, at the time of the Cuban crisis of October 1962, to place the R.C.A.F. component of NORAD's defences in a condition of emergency alert.

No aspect of national strategy in the age of the hydrogen bomb and the long range missile has caused more anguished perplexity than what is known, too euphemistically perhaps, as "civil defence". No government concerned, as it ought to be, with safeguarding its citizens in every possible eventuality could properly neglect the appalling prospect that deterrence might not work. Some preparation, therefore, for surviving a nuclear attack should accordingly be made, the more confidently in the expectation that an impressive civil defence programme might itself increase the effectiveness of the deterrent, offering to any would-be aggressor evidence of the nation's determination to survive and so, hopefully, helping to stay his hand.

But it was not, of course, anything like as straightforward as that. Could it not be argued that civil defence, so far from deterring an aggressor, would only cause him to increase his scale of attack? Might he not misread the signals, mistaking a strategy of deterrence for a strategy of pre-emption? Again, granted that something should be done, how much should be done? An all-out civil defence effort might only intensify the arms race. And even if it purchased survival, how much was survival worth in any case. "Are we to flee like haunted creatures", George Kennan demanded rhetorically in a famous series of lectures, "from one defensive device to another, each more costly and humiliating than the one before? . . . If I thought that this was the best the future held for us, I should be tempted to join those who say . . . 'let us at least walk like men, with our heads up, so long as we are permitted to walk at all.'" What did it profit a nation, any more than a man, if, in saving itself, it lost its soul?

Confronted by these questions, some at least as much theological as technological in their nature, the Canadian government, like other governments, attempted to steer a middle and, it hoped, a reasonable course. It did not abandon civil defence; equally, it did not take it seriously as an integral part of the national security policy.

Cabinet ministers and key federal civil servants were to take refuge in a heavily protected bunker whose location, a carefully guarded secret, was commonly known to be at Carp, Ontario, some 25 miles due west of the capital. The Canadian army was made responsible for rescue work and revival of areas brought under nuclear attack, and training of personnel, both permanent force and reserve, was altered accordingly. But the average citizen was left to fend for himself, armed (if he so desired) with a government loan and a pamphlet from the Queen's Printer, "Your Basement Fallout Shelter".

Producing for Defence

Having by the remarkable arrangement of the Hyde Park Agreement (see above) become an integral part of the continental arsenal of democracy, Canadians looked forward to more of the same when it became apparent, by 1947 or 1948, that instead of peace a Cold War of infinite duration had settled upon the world. This expectation may have been naive, but it was intense. More than any other NATO country, Canada had pressed for the inclusion in the North Atlantic Treaty of Article II which enjoins the members to "seek to eliminate conflict in their international economic policies" and to "encourage economic collaboration between any or all of them". It seemed only fair, it was indeed only logical, that nations standing together in defence of freedom (or any rate of Western Europe), pooling their armour, their manpower and their wits in a unique peace-time coalition force-in-being, should extend their co-operation to the production of defence equipment.

The Korean War created an impetus for Canada and the United States to pledge themselves to remove "as far as possible" those "barriers which impede the flow between [them] of goods essential for the common defence effort", and to develop "a co-ordinated programme of requirements, production and procurement". This agreement of 26 October 1950 was agreement in principle only. The Korean War was not a total war. The centripetal forces which had drawn the members of the Grand Alliance into their wartime unity faltered in the 'fifties'. After the death of Stalin (March 1953), men of good will and high intelligence might all the more legitimately come to quite different conclusions about the strategy and tactics of Soviet policy: lacking agreement on the nature of the challenge, how could they be expected to agree on their response? The sense of urgency which compelled the NATO nations to allocate up to half of their revenues for defence could not bring them to direct their expenditure according to the principle of comparative advantage. Moreover, in this alliance of equals, some were more equal than others. For the United States, almost every weapons system might be comparatively advantageous to produce at home; for, say, Iceland, almost none. The countries in between floundered uncertainly between the competing considerations of keeping up the strength of their defence community, and keeping up with the Joneses.

Canada, a country inbetween, did its best to produce as many of its own weapons systems as it could. There were small failures, and bigger ones. The biggest of them all was the CF-105 programme. No reader of this paper will need to be reminded of the fate of the "Arrow", that superb piece of machinery intended to become the primary fighter-interceptor of North American air defence but which was actually consigned to the wrecker's torch after only two prototypes had flown (at a cost to the tax-payer of perhaps \$400 millions). What went wrong? Until recently the tax-payer had never been told (though he could guess). But in October 1963, the retired general who had been the Government's chief military adviser at the time disclosed how things had gotten out of hand. The Arrow programme began as an airframe programme only: into the airframe, built in Canada, was to be fitted an American or British engine, an American weapons system (Sparrow II) and an American electronic and communications system. In the expectation but without any guarantee that these vital components would be available when needed, the work on the CF-105 was put in hand. A year or so later, when a Canadian firm was developing out of its own funds an engine that seemed a promising unit for the Arrow, the Canadian Government, after (in General Foulkes' words) "a great deal of discussion and heart searching", decided to develop not only the airframe but the engine as well. Meanwhile the Sparrow II was dropped by the U.S. Navy, and the Canadian Government took it over. Finally, the American communication and electronic systems on which the Government had counted were also abandoned; when these, too, were incorporated into the Canadian programme, the tax-payer was saddled with the entire cost of the aircraft. Due to a further miscalculation (involving the number of reserve pilots who could be trained to handle so sophisticated a machine), the original requirement of 400 Arrows for the R.C.A.F. was cut back to something like 100, the unit cost soaring accordingly. Only then was it discovered that neither the United States nor the United Kingdom nor any other NATO country wanted to buy the Arrow for its own airforce.

Had the Soviet Union itself come through with an offer, the Canadian Government might have been tempted to accept. But there was no offer of any kind. The Diefenbaker Government, inheriting the mess, decided to cut and run.

In October 1963, the Minister of National Defence, reflecting on this false start among others, remarked that there were certain lessons to be learned. "One of them is that first of all you have no guarantee that anyone else is going to buy a finished product. Secondly, if you have a good idea and you

are going to develop it, develop it with speed and go all out to make sure it is the first and the best... What we must not do, and what has been done in this country once or twice, is to extend the design and development time so much that you lag behind the efforts of others who come in later and...over-take you and pass you". This was commendably succinct, but Mr. Hellyer might have put it more briefly: "Think".

The Arrow debacle forced upon Canadians an agonizing reappraisal of their role in defence production for the West. If, as their spokesmen now conceded, major weapons systems had become too costly for independent Canadian development, it was all the more important that Canadian industry be able to compete for contracts in the United States on terms that would not discriminate against it just because it was Canadian (and foreign). This was recognized in Washington as well as in Ottawa, and early in 1960 there was born the so-called Defence Production Sharing Programme, well described as "a Cold War version of the 1941 Hyde Park Agreement". A number of important benefits followed; waivers, in Canada's favour, of "Buy American" rules which otherwise would have imposed handicaps of from 6% to 12% on Canadian firms bidding for contracts in competition with American rivals; certain defence items exempted from duty; security clearances forthcoming more readily than might otherwise have been the case. Since the Programme went into effect, more than 300 Canadian firms have done more than \$605 millions of defence business in the United States, much of which (it is fair to suppose) they would not have gained without it.

Adjusting to Disarmament

Canadians, who prospered during World War II, have not been doing too badly during the Cold War. Yet to the extent that their prosperity derives from defence production, it is a false prosperity resting on infirm foundations. It is dependent in the first place on the goodwill of our ally and neighbour, which may not always be forthcoming. It is no easy matter for any government, however friendly, to take a highminded line when confronted with balance of payments difficulties and the protests of depressed regions voiced by powerful politicians. But prosperity is doubly deceptive to the extent that it depends upon the continuation of an arms race, especially the prosperity of a country which, like Canada, has laid and continues to lay such emphasis upon the need for general and complete disarmament. It would be well for both Canada and the United States to devote the same resourcefulness with which they have contrived to share defence production to the coming problem of how to disengage the national economies from defence production as painlessly and constructively as possible. The Canadian Government, for all the talk at Geneva and elsewhere about the urgent need for disarmament, lags well behind the United States in the quality and quantity of hard thinking on the subject; such, at least, is the only conclusion one can form after pondering their respective replies to a United Nations inquiry of 1962 into the social and economic consequences of disarmament. Asked by the U.N. to comment "on the problem for Canada of predicting the choice of uses for resources released by disarmament", the Canadian Government would say only that it was not able to "predict in advance... Under the Canadian democratic system, the Canadian Parliament alone can decide the redistribution of these resources. It is not possible to prejudge what they would decide". This not very helpful response came oddly from a country which, only a few years before, had undertaken, in the Royal Commission on Canada's Economic Prospects, fortune-telling on a national scale. Was it a reflexive return to the old formula "Parliament will decide", employed by Mackenzie King as a delaying action when some hard decision came before him? Or was it that the economic consequences

of disarmament for Canada, which even with the stimulus of Cold War has to acknowledge the highest rate of hard-core unemployment of any free enterprise economy in the world, pose problems so difficult and intractable that it is easier not to think about them at all? One inclines to the latter explanation, especially after listening to such *cris de cœur* as the following, uttered by the Member for Queens when rumours reached him that peace was about to break out in Prince Edward Island: "If the R.C.A.F. station at Summerside were to be cut back this would have a profound effect on the economy not only of that area but of the whole Province... It is perhaps the second most important industry of that Province... I would hope that the Minister would use his best arguments... to convince his colleagues that to cut back this station would be a very serious mistake not only from the defence point of view but because it would have a very detrimental effect on the economy of that area and on the employment situation there". How to adjust to peace is going to prove at least as difficult for Canada as how to produce for war.

Organizing for Deterrence

The complexities of strategy and policy in the nuclear age compelled senior military officers in Canada, as in all Western countries, to exercise judgment in areas lying far beyond their traditional competence. "They have become", two American scholars have noted, "increasingly concerned with international affairs, that is to say, with the premises of military policy, with the purposes for which and the terms on which military forces will be deployed". But despite the new importance of the military establishment in the making of national policy, the traditional Canadian ideal of civilian supremacy has not been impaired. On the contrary, firm civilian control has appeared all the more urgent when even the most distant para-military skirmish runs the risk of thermonuclear catastrophe.

The principle of civilian supremacy has been firmly built into the institutions by which post-war defence policy is made. The Cabinet, the ultimate forum of decision, restored in 1953 the wartime device of an Associate Minister of National Defence (a portfolio which had been allowed to lapse with the coming of peace) when Mr. Ralph Campney was appointed to the post. The division of labour between this Minister, and the Minister of National Defence, has been along functional lines, the Associate Minister attending mainly to administrative matters throughout the entire defence establishment, leaving his senior colleague freer to grapple with increasingly intractable problems of policy. The personnel and tradition of the Defence Committee of the Cabinet are such as to ensure that the dominant voice is that of the civilian. The principal military advisers of the government are members of the Chiefs of Staff Committee which is not, contrary to what its name might imply, a wholly military group, for it includes the chairman of the Defence Research Board, a civilian. It includes as well (since 1951) its permanent chairman. The occupant of this important post (General Foulkes was the first incumbent, succeeded in 1959 by Air Marshal F. R. Miller, formerly Deputy Minister of the Department of National Defence) is clearly intended to infuse the Committee with a supra-service and even a civilian point of view. Additional civilian chaperonage is provided by the regular attendance at meetings of the Under Secretary of State for External Affairs and the Deputy Minister of National Defence, when other than purely military matters are under discussion—as, indeed, they usually are. The presence of these influential non-military figures in the Chiefs of Staff Committee (and indeed in the two key committees that serve it, the Joint Intelligence Committee and the Joint Planning Committee) has drawn from a former Chief of the General Staff the grave criticism that it is "packed" to protect the government against the receipt of unpalatable advice". To the Royal Commission on Government Organization, however, reporting in January 1963, the organization of the top echelons of the

military establishment seemed if anything to be lacking in civilian influence, and it recommended, in addition to strengthening the position and authority of the Chairman of the Chiefs of Staff Committee, the posting of promising civilian officers to military staff duties.

In addition to diluting the military mind by infusions of civilian personnel, the principle of civilian supremacy has also been aided by service training designed to steep the military mind in civilian modes of thought. The R.C.A.F. has been the leader in this field, training the majority of its Flight Lieutenants at its Staff School in Toronto, and a more privileged few at the Air Force College (to which a few Army and Navy officers are also admitted). At the zenith of this educational pyramid is the National Defence College which since 1948 has offered a series of annual courses for what its handbook for participants describes as "the training of senior officers of the Armed Services and civil departments of government in the principles of higher governmental administration and staff work, both in peace and war."

It is of some interest that the first commandant of the National Defence College became after his retirement from active service the most outspoken critic of the fusionist approach displayed in its curriculum. "On the subject of defence", General Guy Simonds has written, "the problem is not one of attempting to devise ways and means of enabling the military to encroach upon political prerogatives, but of getting politicians to face the unpleasant duty of making realistic decisions". Arrangements for exposing the Canadian military to political affairs have been considerably more advanced than arrangements for exposing Canadian politicians to military affairs. The R.C.A.F. tried without spectacular success to bring interested politicians down to NORAD Headquarters at Colorado Springs (and so within the range of its briefing officers); a former Secretary of State for External Affairs remarked in the House of Commons that he had never taken advantage of this opportunity, and never would—for fear, one can only suppose, that what he might see and learn on the mission would weaken his faith in the imminence of universal disarmament.

A potentially more valuable device for bringing politicians face to face with defence dilemmas is a committee of the House of Commons, modelled on the lines of the House of Commons Standing Committee on External Affairs which since its inception in 1946 has done a great deal to improve the knowledge and understanding of its members (and those of the attentive public in the country at large) in matters of foreign policy. The range of witnesses brought before the Special Committee on Defence created in 1963 considerably exceeded that of those appearing before the Special Committee on Defence Expenditures of 1960, as did the scope and intensity of their interrogation. Much useful information, some of it never before disclosed, was placed on public record, and the quality of future defence debates in Parliament can only be improved as a result. It may not be inappropriate to conclude a paper commissioned by, and addressed to, its members with a suggestion for improving its deliberations. The military and diplomatic components of national security policy are, and ought to be, indissolubly combined, in formulation and execution, as well as in study and analysis. Accordingly both the Standing Committee on External Affairs and the Special Committee on Defence should be dissolved, and replaced by a single Standing Committee on National Security Policy.

University of Toronto
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DEFENCE POLICIES RELATED TO FOREIGN POLICY

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Since national security must be the primary objective of foreign policy, it follows that a close relationship inevitably exists between a nation's defence policy and the conduct of its external affairs. The precise nature of this relationship, however, can vary a good deal depending upon the aspirations and resources of the individual countries, and also the threats to which they are subjected. In this paper we shall be solely concerned with the defence-foreign policy relationship in the Canadian context.

Why does Canada maintain armed forces? The answer is not, in any direct sense, "the defence of Canada". Even if it were now considered advisable, we should find it futile to start defending "the longest undefended border in the world". On the other hand, any attack on Canada by a third power would be considered an attack on the United States, with all that that implies. No other country can be quite so confident that the Americans, in their own interests, would go all out to defend it. This would hold true even if the Americans ceased to have friendly feelings towards Canada, or if we refused to contribute to the joint defence of the continent.

Less comforting is the corollary: even if we tried to remain neutral, Canada is virtually certain to be mauled in any assault upon the United States. It is, therefore, in our most vital interest that the United States not only be invulnerable, but appear invulnerable. If the United States were in danger of attack, and Canada were able to make a significant contribution to its defence, anything less than our maximum effort would be folly.

But is this the situation? In the light of official American estimates, the possibility of a direct assault on the United States in the foreseeable future must be considered slight. Even a doubling of Canada's defence forces, moreover, would not significantly alter the global balance of power. If Canada were to abolish its armed forces, and this were to raise doubts about American security, the United States would be obliged to take up the slack, and would probably do so with relative ease. We might find it necessary to permit the Americans greater use of Canadian airspace, and soil for military bases. It is less easy to imagine the circumstances in which Canadian armed forces would be essential to continental security.

Unilateral disarmament by Canada, of course, might be imitated by other allies, thus resulting in a more serious weakening of western defences. Considering, however, the differences between Canada's circumstances and those of the European allies, our example would seem unlikely to start a chain reaction; the possibility is not sufficiently great that it should be decisive in determining Canada's policy. A somewhat greater likelihood is that our allies, especially the United States, would become less considerate of Canada's economic interest when setting their commercial policies. This could hurt, but the total cost would seem unlikely to amount to the 1.5 billion dollars which we spend on defence.

Without military forces, Canada would be less able to contribute to the peace-keeping activities of the United Nations. However, even if we assume that the United Nations, under present circumstances, is vital to Canada's security, it does not follow that our forces are absolutely vital to the success of the U.N. operations. Quite probably other sources could be found. In any

case, it seems likely that Canada could fulfill its United Nations obligations with a much reduced military establishment. A similar comment might be made about the other functions, such as rescue, coastal patrol, and the maintenance of domestic order, which are performed by the armed forces; these services could be provided by forces much smaller, and less expensive, than those now in being.

If we confine our attention to the direct threats to Canadian security, it would thus seem irrational to maintain a substantial military establishment. Why do we do it? Why not take advantage of Canada's uniquely fortunate circumstances?

The reasons, I believe, are twofold: we retain large scale armed forces to preserve our self-respect and to purchase influence in world affairs. We recognize that there are threats to Canada's security, and we reject the notion that we should be entirely parasitic on other countries for our defence. We also know that the key decisions which could determine our survival are now made outside of Canada—in centers such as Washington, Moscow, New York, Paris and Peking. We want to be able to influence those decisions, and cannot do so effectively unless we are paying, in the form of armed force, our membership fees in a number of international organizations.

Concern for self-respect determines that Canada should shoulder a reasonable share of the defence burdens, but it has little to say about the form which our contribution should take. Therefore, the overriding factor in determining the content of Canada's military policy can, and should, be the resolve to purchase influence. There is no other country for which this consideration is more compelling.

The possession of influence flatters the national ego. It is also advantageous to wield influence with other countries when they are formulating policies which might affect our prosperity. In the nuclear age, however, a more substantial reason for seeking influence is to be able to participate in the decisions bearing on peace and war. Above all, influence is to be sought because Canada has a useful international role to play. The security of other countries, as well as our own, is likely to be greater if the voice of Canada is effective in world councils.

What is the characteristic Canadian approach which gives substance to this claim? It is to be more cautious about the use of force, and more adventuresome in diplomatic manoeuvre, than most other nations. Our representatives often find themselves asking more impetuous governments if it is necessary, or wise, to rush into critical areas with military might when other means might serve their purpose better. They frequently question whether established policies are still relevant to the needs of a fast changing world. They urge constantly that the West go as far in negotiation with the Communist powers as is consistent with reasonable safety. They encourage other countries, especially our allies in Europe, to assist in building up the authority of the United Nations, man's great hope for the future.

This approach is not, I believe, to be explained by references to the uniqueness of the Canadian character. Rather it is Canada's general situation which gives rise to attitudes which enable us to counter usefully some of the more dangerous propensities of other nations. For example, the knowledge that Canadian views are rarely if ever decisive accounts for much of the difference between our approach and that of our neighbours to the South. Since we do not bear the primary responsibility for the defence of the West, we know that our errors or hesitations are unlikely to be fatal. We are able to take a more detached view than peoples who know they are in the front line of the global struggle, and our spokesmen can be more daring in raising new ideas. The Americans, even if so disposed, could not be as flexible in their thinking without shaking the confidence of their allies. Since we are not so directly

engaged in the Cold War, and have no colonial interests, we can be more tolerant of criticisms of the West and readier to explore the views of non-western governments.

Where is it most important that the Canadian voice be influential? The answer depends partly upon the ability of other nations, or international organizations, to make decisions bearing on Canada's interests, and partly upon the nature of Canada's diplomatic assets, and the opportunities which these give us to be influential. While it might be useful to wield influence in Moscow and Peking, Canada, acting on its own, is unlikely to be very successful. Influence in neutral capitals might be somewhat easier to come by but their policies are rarely of prime importance to Canada. It is principally in the NATO capitals that we find a coincidence of both factors—an opportunity to gain influence over decisions many of which vitally affect Canada's security and prosperity.

Whenever cold war tension relaxes, there is an understandable tendency to place less emphasis upon military alliances. This is not necessarily wise. Softer Soviet policies could be merely tactical, designed to gain an advantage by persuading the West to drop its guard, or encourage dissent in western ranks. It may require considerable effort to keep NATO intact during such periods. If, on the contrary, the Soviet Union were seeking a genuine accommodation, the greatest impediment could be the clashes of interest, and suspicions, within the NATO alliance. NATO was designed to provide an integrated, effective and economical defence. It has acquired a political role, and it is now important in achieving the degree of western unity which is essential to fruitful negotiations with the Communist powers. The sort of influence which Canada exerts within NATO may well be more necessary during a period of growing detente than when Communist policies are blatantly belligerent.

There is almost always a need within NATO for members which, like Canada, promote diplomatic flexibility. The curse of any alliance is the tendency to adopt unimaginative, unrealistic positions and to resist adaptation. If one contemplates the difficulties of getting agreement to a new policy by all the branches of any one government, especially the cumbersome American model, and then the task of selling it to the fifteen sovereign members of NATO, often with divergent interests and attitudes, it can be readily appreciated that policies are often obsolete even before they are enunciated. By making allowance for the fears and inhibitions of fifteen allies, agreement tends to be at the lowest level of imagination, leaving little scope for negotiation with outside governments. The battling of policy obsolescence and rigidity is a tremendously important task if NATO is to be a help rather than a hindrance to peace and freedom.

Canada needs to maximise its influence with its leading allies not because they are always, or nearly always, right. It is precisely because they can be wrong, with unfortunate consequences for Canada as well as themselves, that it is important to strengthen our position within the alliance. The more one tends to be disturbed by their policies, the more one should seize every opportunity to influence those policies for the better.

This is not to argue that the characteristically Canadian approach is always the most advantageous. Sometimes the general interest is better served by a swift application of force, as during the Cuban crisis of 1962, or a decision to stand pat on a well-established diplomatic position. Nevertheless, bearing in mind the tendency of alliances to become excessively rigid, and to rely too heavily on military might rather than imaginative diplomacy, there can be little doubt about the overall utility of the Canadian contribution to NATO deliberations. Even when our views are not in the end adopted, policy decisions are likely to be sounder if our approach has been sympathetically considered during their formulation.

Military Power can back up a nation's diplomacy in a variety of ways. Intimidation is one, but, even if Canada wished to intimidate other countries, it is unlikely that we could, on our own, muster the requisite power. A second way might be to threaten to withdraw our support unless the other alliance members agree to play the game our way. This can only be effective if one's contribution in men, weapons or real estate is essential. While Canada's contribution to NATO is not without significance, it scarcely suffices to emulate with success the diplomacy of President de Gaulle.

For a nation of moderate means, the soundest course is to seek influence through gaining the goodwill, respect, and confidence of its allies. Canada can only do this by proving itself to be a loyal, co-operative partner, prepared to observe the club rules and to bear its share of the cost, risk and unpopularity of agreed policies. A nation can remain a member of NATO, of course, even if it makes no military contribution. Iceland is a case in point. It is also true that influence within the alliance can vary with factors other than military contribution. The importance of intelligent, persuasive diplomacy, for example, should not be overlooked. Nevertheless, there is a world of difference between having the right to speak, and the ability to obtain a sympathetic hearing. Unless a member is making a contribution which the others consider to be reasonable, its influence in the long run is bound to suffer.

This consideration is especially important if one recalls the sort of influence which Canada seeks to wield. NATO decisions represent a heavy investment in diplomatic sweat and tears. Once agreement is reached, there is an understandable disposition to resent the first delegation to raise unsettling questions, or to suggest a fresh appraisal. The boat-rocker, however necessary, is seldom popular. Unless Canada bears a fair share of the alliance burdens, there is little prospect that we could play our diplomatic role with success.

A specific issue might help to illustrate this general point. No feature of Canada's foreign policy enjoys greater popular support than its emphasis upon disarmament. Sometimes the fear is expressed that membership in NATO impedes this endeavour, but the precise opposite is the case. After 1945 Canada was the only middle power invited to serve on the commission for nuclear disarmament; we were invited because we had helped to develop the first atomic bomb. We are currently participating in the 17-power disarmament talks in Geneva as one of the 4 powers designated by NATO. Long before meeting the Russians, the western allies will have been hammering away at joint proposals, and they often confer privately during the negotiations to amend their position. It is within this group that Canada is able to make its best contribution. Because Canada is not a great military power, the Russians are unlikely to be interested in our views if they think we are speaking only for ourselves. Similarly, the 8 neutrals represented in Geneva value their contacts with us largely because they believe that, although we are not completely tied to the other western participants, we are influential with them. We would thus be far less effective in the disarmament field if we lost the confidence of the major NATO powers; we can only retain this if we show we are serious about helping to meet the military challenge to the West. It is not stretching things too far to say that Canada needs to arm in order to be influential in promoting disarmament.

If it is granted that the chief purpose of Canada's defence establishment is to purchase influence in western policy making, what are the implications for the composition of our military forces? The first criterion must be that they meet the needs and expectations of the countries whose goodwill and confidence we seek to gain; we must give great weight to the wishes of our allies when making commitments and, of course, keep whatever commitments we do undertake unless there is agreement that they should be altered. There is no point in making a substantial military effort which disappoints, or even antagonizes, the very countries we aim to influence. Naturally we should like our contribution

to be distinctively Canadian, and to form an efficient part of an alliance which is itself following the soundest of all possible policies. If our primary aim, however, is to buy influence, we might well find that this can be best accomplished by making a military contribution which, in our judgment, is not the best we could do.

It is true generally, of course, that allies make their greatest contribution when they do not insist upon following policies which they individually consider best, regardless of the views of the others; a viable defence can hardly be built upon fifteen different strategies; a second best strategy, which all are prepared to support, might well be preferable to one which is closer to the ideal but fails to win general acceptance. This consideration is especially persuasive for a secondary power intent upon maximizing its influence within the alliance.

It is not suggested, however, that we should meekly go along with inefficient plans for the alliance as a whole, and the Canadian forces in particular. We have, after all, a real interest in NATO's policies being as sound and effective as possible. This not only enhances Canada's security but it is easier to maintain popular support for a strategy which makes sense from every point of view. Indeed, one of the best reasons for seeking influence in NATO is to help make NATO's strategy more effective than it has been thus far. This is not merely a matter of seeking the best means to deter war and aggression; the prospects for successful negotiations with the Soviet Union, especially on disarmament, could be considerably affected for good or ill by the military posture adopted by the West.

Canada needs two military policies. The first would be the ideal policy which we believe NATO as a whole should adopt; we should be devoting more independent thought to military doctrine, and prepared to use up a good deal of our diplomatic credit within NATO in order to promote our views on alliance strategy.

Our second policy should determine the precise nature of Canada's military activity, taking into full account the plans which NATO has in fact adopted, and the performance of the other allies. Let us maintain a clear distinction between the policies we are advocating for adoption by NATO, and the actual contribution we make in order to fulfill our obligations and gain the goodwill and confidence of the alliance.

National contributions are never determined, of course, without full consultation between NATO and the countries directly concerned. Even if it were a supranational body, which it is not, NATO would be unwise to dictate to its members. Individual countries should be encouraged, so far as is feasible, to undertake tasks which they themselves are keen to perform, and believe they can do well. The odds are that they will perform such tasks with their maximum efficiency. This generally means assigning each ally primary responsibility for the defence of its own soil, and adjacent waters.

On the other hand, attention must be paid to the greater need for NATO forces in some areas than in others, and the existence of some chores which no ally is eager to take on. Even a modest Canadian contribution in Europe adds to the morale of the alliance and purchases a disproportionate amount of diplomatic influence. Similarly, even though we cannot be forced to take on unpopular tasks, a willingness to do so might be the best way to accomplish our primary purpose in belonging to the alliance.

The gains to be achieved by a sensible division of labour within the alliance are obvious. Although the nations with world-wide responsibilities may feel they need to maintain balanced forces, there is no necessity for most of the members to perform part of every role. This is especially true with respect to nuclear weapons. Since there may now be sound reasons to withdraw these from the front line troops, and to concentrate control as much as

possible, it would seem reasonable for countries like Canada to leave nuclears to the major powers—as few of these as possible—and to concentrate upon supplying conventional forces, which are now NATO's greatest need. The alliance might welcome an indication by us that in future we would like to specialize in this way. On the other hand, present commitments should be fulfilled, and new developments might well make it desirable for Canada to retain nuclear armament in the future. In any case, it is important that we not seem to be shirking, or to be seeking a role which might make it appear that we are somehow purer than the countries which are fulfilling a nuclear role in the interests of the entire alliance. There could be no surer formula to diminish our influence with them.

It is possible that Canada will soon be confronted by a somewhat more difficult problem with respect to nuclear arms. So far we have been concerned only with tactical weapons held under joint control arrangements with the United States. Quite properly we have refrained from seeking membership in the "nuclear club", even though Canada is one of the relatively few powers which has been in a position to manufacture, if it wished, its own nuclear deterrent. We have refrained because the increased dangers resulting from proliferation would outweigh any gain in deterrent value. NATO members are now considering the creation of another strategic deterrent, the so-called Multilateral Force (MLF). It is not clear that this is required on purely military grounds, but it may prove necessary in order to check the proliferation of independent national control.

If the MLF does come into being, it is probable that only those members which contribute directly to it will be given a voice in the determination of the rules governing its deployment and use. There would then be a club within the club composed of nations with a much greater part in the most vital decisions which NATO might ever be called upon to take. The questions which Canadians might be required to answer are not: Do you like nuclear weapons? or even: Do you approve of the MLF? Rather it would be: Assuming that the MLF is a fact, do you want to leave its control entirely to those nations which are eager to possess this awesome responsibility? Is the NATO deterrent likely to be employed more, or less, wisely if Canada refuses to participate? Would Canada improve, or hinder, its ability to promote disarmament if it foregoes influence which it could have in the making of NATO's nuclear policy?¹

We have been considering the manner in which Canada's military exertions enhance its foreign policy by maximizing influence within NATO. There are observers who contend that such considerations are based on illusion, and that the major nations never heed their lesser allies, especially when they are stable and well mannered. The super-powers, it is argued, may go through the motions of consultation, and even accept advice on secondary issues, in order to humor their minor partners; they do not allow themselves, however, to be influenced in matters of real consequence. This is not an easy argument to contest. Influence is inherently difficult to quantify, and it is usually impossible to say with assurance whose representations have been decisive whenever an international decision is taken. Much of the relevant information is classified, but, even when this is not the case, and we have reason to believe that the Canadian voice has been influential, it is generally wise to be reticent lest we make it more difficult for the other government, or governments, to heed our advice in the future.

¹ Superficially similar arguments are being invoked, improperly in my opinion, to justify the continuance of Britain's independent nuclear role. The question for Canada would be different in that it is not proposed that the participants in the MLF be given the right to employ the deterrent on their own; initially each member would possess a veto; later decisions might be taken by majority vote.

Despite these and other complications, there appears to be a consensus among those with first hand experience in international affairs that Canada has been able to exert an influence in western policy formation which is both significant and useful. It would be easy to exaggerate this influence, and the frustrations and disappointments have been many. In world affairs, even within the western club, the rewards do not always go to the deserving. What can scarcely be contested, however, is that our influence over NATO policies has been greater than if we had remained on the outside, and also that it has borne some relation to the degree of our military contribution.¹

Influence with the United States is especially important to anyone concerned either with the promotion of direct Canadian interests, or our more general interest in a secure and prosperous world. Fortunately, Canada's activity in NATO is consistent with maximizing our influence in Washington. Indeed, the Americans prefer to have us contribute to the defence of Europe rather than concentrate entirely upon North America. For our part, it is often desirable, when attempting to influence American policies, to concert our efforts with those of other like-minded members, especially Britain and the Scandinavians. Joint membership in NATO makes this easier. Some authorities go so far as to recommend that even more of our relations with the Americans be conducted through NATO channels, and that NORAD, for example, should be fully integrated into the larger alliance.²

Critics of Canada's current policies often contend that we have become too closely identified with both NATO and the United States. They advocate that Canada's major role should be within the United Nations, and hold that membership in one of the cold war blocs stands in the way of our most effective contribution. It is my belief that the peace of the world, for some time to come, is going to depend primarily upon the relations between the super-powers, and that Canada's best opportunity to influence the course of world events is through remaining a respected member of NATO. Nevertheless the desire to increase our support for the United Nations is based upon more than sentiment. The United Nations, although disappointing in many ways, is moderating the behaviour of the super-powers and helping to stabilize the balance of terror by being able to fill power vacua which might otherwise become new sources of cold-war conflict.

For Canadians, a key question is whether we can reconcile augmented support for the United Nations with our commitments to NATO. The answer is probably yes. Canada has already been able to contribute more than most countries to the United Nations without defaulting on its NATO obligations. This has enhanced our general standing in New York and strengthened our voice in determining UN policies in such trouble spots as Suez and The Congo. It is not certain that a Canadian offer of much larger military forces would be taken up by the United Nations. If, however, we do decide to place more substantial forces at the disposal of the United Nations, without increasing our overall defence budget, a reduction in our contribution to NATO might prove inescapable.

The possibility should not be excluded that the NATO allies would agree to such a shift in emphasis by Canada. Most of them recognize that their interests are served by the UN peacekeeping operations, and that it is desirable to have forces from NATO members participating in them and thereby exercising some control. They also appreciate that, for a variety of reasons, the

¹ In 1961, for example, after Canada announced a modest increase in its forces in Europe, there was a marked increase for a time in the receptivity of the other allies to Canadian views. For a fuller treatment of Canada's influence, see my book *The Policy Question* McClelland and Stewart, 1963, especially pp 67-9.

² The contrary case has been stated persuasively by Dr. R. J. Sutherland. See "Canada's Long Term Strategic Situation", *International Journal*, Summer, 1962, pp 207-8.

forces of some NATO members are more acceptable than others for service under the UN flag. NATO might accept the proposition that such countries should be given some credit in alliance accounting for their military contributions to the United Nations.¹ In the next reassignment of roles within NATO, moreover, Canada might be encouraged to increase the mobility of its forces and reduce their dependence upon tactical nuclear weapons. This would make it easier to combine an offer of increased assistance to the United Nations with the maintenance of our commitments to NATO.

Canada would be confronted by a genuine dilemma only if it transpires that a request from the United Nations could not be met without reducing our NATO contribution to a degree which would prejudice our standing with our allies. We should then want to know if the United Nations was in a position to make good use of an increased Canadian contribution, and also if there would be a gain in Canadian influence in New York comparable to the loss in NATO. If we decided to meet the new UN requirement, we should take pains to dispel any impression that Canada in doing so was trying to improve its image at the expense of its NATO partners. The worst of policies would be to remain officially a member of the alliance but to act as if we were independent of it; we would not escape the odium (if such it is) of belonging to one of the cold-war blocs but, by antagonizing its members, we would sacrifice our influence over their policies.

Would Canada's standing in the United Nations be enhanced if we ceased to belong to NATO and NORAD? Most probably not. Our greatest influence within the United Nations was during a period when Canada was also a prominent and enthusiastic member of NATO. Since then there have been changes in both organizations, but the effects of these have tended to cancel out. The addition of a large number of new members, for example, mostly unaligned countries from Africa and Asia, has made it more difficult for Canada to be influential in the United Nations; the newcomers turn most naturally for guidance to the more experienced members from their own continents, and they have combined to increase the pressure to accelerate decolonization. Members who fail to support their increasingly extreme resolutions are becoming isolated. Canada's associations in NATO with several colonial powers has been a modest handicap, but one that is declining; only Portugal now refuses to grant independence to its colonies and most of the NATO allies have been strongly critical of her attitude. Britain's continuing responsibilities in Africa present a greater difficulty, but Canada's reluctance to support extreme resolutions critical of British policies would be much the same even if both countries were not partners in NATO.

Canada's membership in NATO, therefore, is not a serious embarrassment in its relations with the Afro-Asians, who now comprise about half the membership of the United Nations. Indeed, it is probably an asset. Many of the unaligned nations regard Canada as more understanding of their position than most of the other western allies. To the extent that they do consider us sympathetic, they want us to protect our influence in Washington and the other NATO capitals. They value our good offices more than our advice, and are in no pressing need of further recruits to the unaligned camp. If Canada broke its connection with NATO, or ceased to be regarded as a member in good standing, the unaligned governments would probably have less interest in cultivating our friendship.

Canada's "inoffensiveness" is certainly a diplomatic asset. Nevertheless, we should err if we thought that we could make ourselves more widely acceptable by cutting our armed forces. Quite the contrary. For one thing,

¹ This would be especially reasonable if, as in the case of Cyprus, the UN action were helping to keep the peace within NATO itself.

this would make us less able to carry a share in the burdens of peacekeeping, or to help countries like Ghana train their own forces. Any feasible increase in Canada's military capability, indeed, would make us more valued as a member of both the United Nations and NATO, without creating apprehension or ruining our reputation as reasonable and pacific people.¹

What of the attractive possibility that Canada's military expenditure might be converted into economic assistance to the underdeveloped nations? Such a conversion would not be easy, at least in the short run, and we might then be less able to give these countries the sort of assistance which they most need; order must precede economic development, as has been demonstrated in the Congo. Furthermore, even if one believes that influence among the underdeveloped countries is of primary importance to Canada, which is questionable, it must be noted that the giving of economic aid has not proven to be an efficient means of gaining influence. Canada, I believe, should increase its programme of economic assistance; if this were achieved by reducing the armed forces, however, our overall diplomatic effectiveness would suffer.

Some Canadians appear to view foreign and defence policies as though they were competing alternatives. This is a serious error; although there can be differences of opinion between soldiers and diplomats, in practice they strengthen one another greatly in promoting the interests of the Canadian people. Another error is to believe that armed forces are wasted unless engaged, or likely to be engaged, in fighting; this was never true but, under nuclear conditions, it has become the reverse of the truth; deterrent forces will have failed in their essential purpose if they do not deter war as well as aggression. Canada's military establishment can best help to make major war less likely by buying influence in those centers where the vital decisions affecting peace and war are made. Many Canadians might prefer their representatives to be active in the United Nations rather than the western military alliance. The conclusion of this paper is that we can continue to be useful in both, and that influence in one strengthens our position in the other. In the unlikely event that a choice has to be made, however, it is probable that for some time to come Canada can best contribute to the world's security, which is inseparable from its own, by retaining influence at the center of power in the western alliance.

¹ This would probably not hold true if we were to acquire an independent nuclear deterrent, but there is no evidence to support the fears, which were widespread a year ago, that our diplomatic effectiveness would suffer if we accepted tactical nuclear weapons under joint control arrangements.

THE DEFENCE POLICIES OF NATO MEMBERS AND SOME OTHER NATIONS

By: JAMES I. JACKSON

Introduction

Background

The Special Committee on Defence of the House of Commons is concerned with Canadian defence policy. Defence policy cannot however be studied in isolation, but must be seen primarily in relation to foreign policy, and also as influenced by costs, the state of the economy, public opinion, and weapons technology. A study in this broader context can be illuminated further by consideration of such general subjects as arms control, and the relationship between foreign and defence policies, or by comparisons of policy choices today with past policies and with the policies of other nations. The committee has therefore called for a number of papers covering such topics, among which is one on the defence policies of NATO members and some other nations.

Aim

The aim of this paper is to provide information on the defence policies of NATO members and some other nations.

Scope of the Study

The Committee has asked for an objective summary of principal features, emphasizing the plan and direction rather than the detail of policy. While the paper attempts to meet this requirement, it should be approached with an overriding reservation. A defence policy is strictly speaking a statement, but policy statements vary greatly in cogency and clarity. When clear policy statements are available, the author has tried to reproduce them accurately. When they are less than clear, he has attempted a fair interpretation. He has not attempted to evaluate any policy in the light of current military thinking, nor has he reported judgements on the effectiveness of the forces described.

The Committee has asked for information on NATO countries, some Communist countries, and "countries like Australia, Japan, one or more Latin American countries, and any other whose problems might have—relevance—" to Canada. There is however no evidence to suggest that the Communist satellite countries have defence policies of their own, and thus their study would be unrewarding. Furthermore, the military role in Latin American countries is such as to make their defence policies only marginally of interest. Finally, because both the United States and the Soviet Union are nuclear Super Powers with vastly complicated military and defence commitments, their adequate treatment in this paper would leave little room for material on other powers whose policies are more specifically pertinent to the Canadian problem. In the interests of space, therefore, the United States, the Soviet Union, the Communist satellites, and the South American nations have not been included in the paper.

Arrangement

The arrangement of content is mainly geographical. The first section covers the Secondary Nuclear Powers: Great Britain and France. A second section

groups together the non-nuclear European powers: West Germany, Belgium, the Netherlands, Luxemburg, and Portugal. The third section deals with the Scandinavian nations: Norway, Sweden, Denmark, and Iceland. The fourth section covers the south European nations: Italy, Greece, Turkey, and Yugoslavia. The fifth section includes two Pacific nations: Japan and Australia. A table attached as an appendix gives a comparison of populations, force sizes, and defence expenditures of the nations discussed.

The Secondary Nuclear Powers

General

Although they are quite overshadowed militarily by the nuclear Super Powers, Britain and France possess the national strength and weaponry to be considered in a special category as secondary nuclear powers. Each is possessed of global interests or responsibilities, and each is attempting to maintain (in Britain's case) or build (in France's) military establishments responsive to a full variety of military challenges.

Britain

Britain's defence arrangements involve her in alliances, agreements, and guarantees across the globe. In Europe her main though not sole commitment is to NATO; in the Middle East and Far East she has obligations to colonies and protectorates as well as membership in CENTO, SEATO, and ANZAM.

After the Korean War and into the mid-Fifties, her defence burden and the consequent demands on manpower and industrial resources became increasingly difficult to support. Defence expenditure mounted to some 10% of GNP, and 7% of the population was either in the services or supporting them. The upkeep of overseas forces was making unacceptable inroads on the balance of payments. A radical change of direction became necessary, and the new defence policy, announced in the White Paper of April 1957, has been the basis of British Defence policy ever since.

The White Paper identified two major roles for armed forces: to deter and resist aggression in concert with allies; and to defend British colonies and protectorates against local attack, including undertaking limited operations in emergencies. The impossibility of protecting UK from nuclear attack was recognized, and thus the aim of military planning was seen as being to prevent war rather than to prepare for it, in consequence of which the priority task was that of developing deterrent weapons.

This reasoning placed emphasis on the building of nuclear weapons and delivery systems under independent, British control. The use of the V-bomber force with atomic and later thermonuclear warheads was projected, together with the extension of weapons-carrier development into the era of the ballistic missile. As part of the strategic air system, a protective fighter and missile force was called for.

The White Paper also identified a need for conventional forces. These were first necessary to meet Britain's commitments in Europe, but the Paper argued for a numerical decrease of NATO contribution which would be made up by increased fire power. For the global deployment of conventional forces, the new defence posture was based on strategically placed garrison points in the Mediterranean, the Middle East, and the Far East, upon which were based land/air systems, and sea/air systems composed of small-carrier groups. This global land/air and sea/air system was to be supported by a main central strategic reserve in the United Kingdom capable of rapid movement by strategic air transport to troubled areas.

The new policy was intended to cut down a total military strength which stood at 690,000 in 1957 to 375,000 by the end of 1962, and eliminate conscription.

Since 1957 various important influences have had their effect on this defence policy. There was the abandonment of attempts to develop a ballistic missile, the acceptance of Skybolt to extend the life of the V-bomber force, the cancellation of Skybolt, and decision to substitute nuclear submarines armed with Polaris missiles. But such a series of developments has left unaltered the principle of maintaining an independent nuclear deterrent. In the same way British overseas responsibilities have been greatly altered by events, including the fact that a number of colonies have gained independence. By 1962 the need for many overseas detachments had diminished, and reliance could not be placed on many smaller countries to provide bases. Although it became necessary as a consequence to find ways of keeping men and heavy equipment deployed at sea, and of increasing the air and sea portability of the strategic reserve, the general principle of overseas deployment was not altered.

This is not to say that the policy has been in every way accepted. Total defence expenditures have been reduced to about 7% of GNP. However the manpower strength of the services (as a result of the international situation rather than of defects in policy) was 445,900 in 1962 rather than the projected 375,000 and was around 433,000 in 1963-64. More significantly, however, there is considerable doubt in some quarters whether Britain can fulfil her overseas commitments with the number of men she has available, especially as with the abandonment of National Service, the number of reservists liable to recall is gradually running down. This doubt, accentuated by involvement in such recent simultaneous crises as Cyprus and Malaysia, has led to renewed questioning of the value of the independent deterrent.

These questions, together with the precarious position of the government in power, lead to a consideration of the Labour position. Labour rejects neutralism for Britain, but does not believe she can continue as an independent nuclear power. The Labour stand emphasizes the need for conventional forces in NATO, and for British involvement in overseas areas where the British presence still exists, and stresses the need for mobility to make up for the loss of overseas bases. Labour supports the view that nuclear weapons should be confined to USSR and USA, and has proposed that a nuclear-free zone be created in West Germany, which should not either directly or indirectly become a nuclear power. A Labour Government would be prepared to study any proposal for greater participation by both Britain and other NATO nations in nuclear policy, but would not be too enthusiastic about the idea unless it were the only way of diverting West Germany's nuclear ambitions.

France

The main thrust of French foreign policy is toward establishing France as a great power equal in every respect to other great powers. By her definition of great power status, France must have full capability to defend herself from aggression, must be independent of the effects of preferential or discriminatory treatment by the super powers, and must be a strong global influence able to extend economic and military assistance wherever she may deem her interests and responsibilities to lie.

Possessed of economic health, political stability, and forceful leadership, and with the troubles of Indo-China and Algeria behind her, France is now stronger than at any time during the century. She has started to translate the premises of her nationalism into such action as her opposition of U.S. domination in Europe, her refusal to allow foreign-controlled nuclear weapons on her

territory, her neutralization plan for South East Asia, and her consideration of extending economic aid to Latin America and South East Asia.

Changes in her military establishment reflect this renewed emergence into world affairs. As the result of a complete reappraisal of defence matters, France is now building three major forces. The first of these is a nuclear strategic system made up of a strike component and an air defence component, to be built up between 1963 and 1965 with French atomic warheads, strike aircraft, and American tankers, and then to be succeeded by thermonuclear warheads and a submarine-launched ballistic-missile force. This is to be a second-strike force targeted on cities.

The second force is an intervention force, a sea/land/air system for nuclear or conventional operations in or outside Europe against aggression toward France or her allies. This system will be the source of France's NATO contribution. The land component will be six divisions, one of which will be airborne and designed for overseas deployment. The air component will be tactical, fighter-reconnaissance and transport air forces to be organized in two tactical, air corps and a transport formation. The sea component will feature a high degree of mobility. It will be based on aircraft carriers, and include nearly all French naval forces except coast and defence vessels and the missile submarines. Its roles will include transporting land forces and assisting them in amphibious operations. Beginning in 1970, the intervention forces should have French tactical atomic weapons.

The third force will be the territorial defence force. Although it will have some air and naval strength, it will be mainly a land system, with a projected strength of ten brigades by 1967, designed to defend French territory.

The planned strength of the French military establishment, which is supported by conscription, is 668,000 by 1970. The new policy will result in an increase in defence expenditure from about \$4 billion in 1963 to \$4.6 billion in 1969, but this rise will be a constant 7.4% of GNP and 22% of the national budget. The study and manufacture of nuclear weapons and delivery systems will be 13% of military expenditure, rising to 25% by 1970.

The European Powers

General

The four other nations of Central Europe vary greatly in size and recent history, but they share prosperity and abundantly healthy economic growth. Germany is the largest country of this group; Belgium, the Netherlands, and Luxemburg are the smaller members. Most of the armed forces of all these NATO nations are under the NATO field command Allied Forces Central Europe.

The fifth power studied in this section is an Atlantic rather than Central European power; the Republic of Portugal. She may seem further removed because of the vivid contrast made by her poverty with the affluence of West Germany and the Benelux nations. The juxtaposition is nonetheless perhaps instructive, for in Portugal we find a nation whose economic base is quite different from the nations just studied, and whose reactions to the threat of losing overseas territories are markedly different from the reactions of two other powers—Belgium and the Netherlands—who have recently faced a similar problem.

The Federal Republic of Germany

The Federal Republic of Germany, economically strong and politically stable, stands at the edge of the iron curtain and athwart the chief avenue of a Soviet advance into Europe. Concerned with her economic development and

unburdened by responsibilities to the United Nations, the focus of German defence policy is on the Soviet threat generally and its specific bearing on Berlin.

The Federal Republic has in consequence developed its defence policy solely to oppose the Soviet threat, recognizing this as a task that can only be done in concert with allies. NATO serves West Germany not only by increasing her security as a regional defence agreement; the fact that it permitted German rearmament while keeping her forces under Allied rather than national control overcame a strong domestic reluctance to rearm. In the treaties of Paris permitting her rearmament, she renounced strategic nuclear forces of her own.

Within the context of the alliance, Germany has shown herself able to identify her own national interests. She opposed the NATO strategy of withdrawal because it would abandon the nation to the USSR. She has opposed any disengagement that would bring about the neutralization of any part of Germany. She has supported US proposals for a multilateral nuclear force.

Considerations of geography and logistics, when added to Germany's determination to defend her territory, dictate a need to deploy along a forward line as heavy a concentration of technically advanced weapons as the conditions of nuclear war will allow. Thus the emphasis in the Federal Defence Force (Bundeswehr) is on well-equipped land forces and supporting tactical air forces. Objectives of the German build-up, which was started in 1956 and accelerated by the expected Berlin crisis of 1961, call for a sizeable contribution to the NATO land/air system comprising an army of over 200,000 in 12 divisions (including armoured, mountain, and airborne divisions), a tactical air force of 100,000 men in 28 wings, and nuclear weapons under US control. There will also be a territorial defence force of some 200,000. The sea/air system will perform an auxiliary function, again defensive in purpose, of protecting the coasts and the access to the Baltic, using small ships and some air.

The military establishment is supported by conscription, and attempts have been made both in selection procedures and other personnel policies to prevent a rebirth of militarism. Expenditures in developing the Bundeswehr have been heavy; in 1962 they were at almost one-third of the total the largest item in the budget, and are expected to increase as aircraft and missiles are acquired. Foreign grants have also been made, and most armaments have been purchased abroad. West Germany is joined with Belgium, Italy, the Netherlands, and the United States in producing the F104 for all NATO nations. She has a cost sharing agreement with Britain on further development of the Hawker P1127.

Belgium

Lacking overseas commitments, Belgium has limited her defence policy to that required to preserve national security through the collective protection of NATO. Although a charter member of NATO, and the most highly industrialized and densely populated country in Europe, her support of the alliance is qualified by a skepticism over its effectiveness that reflects Scandinavian attitudes. Her feelings have not been improved by the role played by the United States and the UN in the Katanga and the Congo. Belgium appears satisfied with the present scale of military effort in Europe, and with the protection afforded by the U.S. deterrent; the Belgian Senate has prohibited government participation in discussions on a multinational NATO nuclear force.

The Belgian army of 85,000 is assigned to or earmarked for NATO, as are the six tactical squadrons and Nike missile units of her air force, and all her navy. The navy reflects its purely European responsibilities in being made up solely of small escort and minesweeping vessels. Active NATO-assigned units are deployed in Germany, and a territorial defence reserve is in existence.

The forces are supported by voluntary enlistment and a conscription period of 12 months which would probably be politically impossible to extend. Military expenditure is about 3.4% of GNP.

A military and technical agreement signed by Belgium and the Netherlands in 1948 provides for standardization of equipment, coordination of training methods, and co-operation between staffs of military colleges.

Netherlands

Holland's defence policy must recognize both the defence of her home territory and her remaining responsibilities overseas. Holland's military experience in two wars has left her with a correct rather than cordial attitude toward West Germany, and has made her one of the staunchest supporters of NATO in Europe.

Although a distinction is made between NATO forces and national forces, all the 98,000-man army (including reserves) is either assigned to or earmarked for NATO, as are five of the air force's nine squadrons deployed in 2nd Tactical Air Force. The air and land forces contain Honest John, Nike, and within the near future Hawk missile units.

Holland's overseas commitments have diminished since the early Sixties. The transfer of power in Indonesia was accomplished with typical rationality, and without a significant role being played by force. Some attempts were made to reinforce garrisons by air, but these were thwarted by the refusal of landing rights. The difference between Dutch and Belgian policies and responsibilities can be seen in the fact that a Dutch naval base is maintained in the Caribbean, and that the navy contains an aircraft carrier and two cruisers as well as the normal sea/air escort and anti-submarine components. There is also a small number of marines in the navy.

Total military forces are 141,000, supported by conscription with a period of service of 20-24 months. Expenditure on national defence is around 5.0% of GNP.

Luxemburg

The Treaty of London in 1867 imposed unarmed neutrality on Luxemburg which was not abandoned until military service was made obligatory in 1944. Today Luxemburg contributes an infantry brigade available to NATO on mobilization, supporting it with a short conscription period of 9 months and a defence expenditure which is 1.6% of GNP.

As the smallest nation in the United Nations, Luxemburg sent a small "armed and eager" platoon to Korean in 1951.

Portugal

Portugal presents the case of a poverty-ridden small European power using its military forces to retain a threatened overseas empire upon which it is almost completely dependent.

Her dependence on her empire, and the threat to it, are the governing factors in Portugese defence policy. She is a member of NATO, to which she has contributed facilities in the Azores and a maritime squadron, though not without dissatisfaction, some of it over command arrangement in Portuguese waters. Her ardour for the alliance, never particularly strong, has been cooled even more by the failure of her treaty partners to support her in her colonial troubles. Portugal is also linked to Spain by the Iberian Pact of 1939, and the provisions that this treaty makes for mutual assistance to preserve the internal security of the signatories may become more important as the domestic discontent with government policy grows.

These matters aside, the main thrust of Portuguese military policy today is toward retaining her restless territories of Angola, Mozambique, and Guinea. Her total armed forces of 61,000 have increased so that they now number 102,000, of which 14,000 are African troops, and approximately 80,000 are deployed overseas together with naval and air units.

The armed forces are for the most part poorly equipped, but the colonial operations have increased defence expenditure from an average of 4.5% of GNP to 8.9%. The military are politically influential, but Salazar is not a military dictator and remains somewhat distant toward the military.

It should not be assumed that the tranquillity that has characterized the Portuguese political scene can be maintained indefinitely in the face of its colonial campaign. There is opposition to the policy of military action as the best way to solve the problem, and doubts as to whether military action can control the situation until the somewhat unconvincing reforms purportedly underway have effect. The colonies and Portugal have formed a closed economic system, but even this favourable circumstance has provided the lowest standard of living in Europe, a per capita income of \$250 annually, and an annual economic growth rate of between three and four percent. The situation in Portugal should not be considered stable.

The Scandinavian Powers

General

On Europe's northern flank we can conveniently group together the four Scandinavian powers of Norway, Sweden, Denmark, and Iceland. These countries that have historically remained remote from Europe, and that are bound together by strong ties of mutual sympathy. This aloofness and these ties still remain, but the defence policy of each nation makes up an interesting study in different reactions to the challenges of the post-war period.

Norway

World War II ended Norway's neutrality, and she became a firm supporter of the UN. This commitment to the UN, together with her vulnerability in the East-West conflict, led her to a defence policy based on maintaining harmony between the USSR and the West, and to attempt to become an international mediator.

By 1948 it became clear that the UN could not provide security, and that benevolent mediation was ineffectual. Looking for protection in regional security, Norway had three choices: to join Sweden and Denmark in a neutral Scandinavian alliance, to join them in a pro-Western Scandinavian alliance, or to join NATO. Sweden insisted on a neutral alliance. Norway believed a neutral alliance could not give security, and was reluctant to accept the heavy arms expenditure of such neutralism. Negotiations broke down, and Norway joined NATO. However Norway's relationship with NATO remains strongly qualified. She has limited economic and population resources, lacks confidence in NATO's ability to protect her, and is aware in her relationships with the USSR of Finland's precarious position. The strong ties with other Scandinavian countries which this latter factor emphasizes are manifest in the Nordic Council.

Norway's strategic value is great. She lies close to the shortest air routes between North America and the USSR, and between the avenues of Soviet naval debouchment from the Baltic and the Arctic harbours. Her coastline offers numerous bases for operations into the Atlantic.

Norway's military policy recognizes her inability to meet invasion, but assumes that if attacked her strategic value will bring help from more powerful allies; her forces are designed to gain time for help to arrive. Influenced by the German coup of 1940, the military establishment embodies a high degree of

readiness in both regular and home guard forces, the ability to carry on isolated local resistance, exploitation of the physical characteristics of the country, and well-developed communications to offset dispersal. For land defence the small 5000-man army is organized in land defence districts. The sea/air system comprises escort vessels, submarines, and anti-submarine air units. The air system includes several squadrons of fighters, and some conventionally-armed Nike. Service is universal and compulsory.

Norwegian forces are earmarked for NATO in emergency rather than permanently assigned, and Norway does not allow NATO forces or nuclear weapons to be based on her territory, although she provides an important segment of NATO radar surveillance. Her military development since 1951 has been some 40% dependent on foreign financial support, although some of this has been infrastructure funds. Norway is joined with Britain, Denmark, Turkey, and the United States in a joint-production agreement for the Bullpup air-to-surface missile.

In war, Norwegian forces will come with those of Denmark under AFNORTH for the defence of Norway, Denmark, Schleswig-Holstein, and the Baltic Approaches. In this area, the deployment of a German division in Schleswig-Holstein has allowed Norway to attend to the defence of her northern border with the Soviet Union.

Norway has supported the UN by providing military forces for the UNEF in Gaza, and Norwegian military personnel were at the disposal of the UN in the Congo from the start of the operation. Norway has joined Denmark and Sweden in establishing special units earmarked and trained for UN use.

Sweden

If Norway presents the picture of a somewhat reluctant member of an alliance, Sweden is the epitome of the resolute neutral. Aided by a technically advanced economy, a location that offers an enemy no great strategic rewards, and a markedly determined national spirit, she maintains her policy of armed isolationism into the mid-Sixties. Fundamental to this policy is impartiality toward all aligned powers, great, medium, or small, in consequence of which Sweden grants no access to foreign forces, produces as much of her own weaponry as possible, and makes no presumptions about outside help in her defensive planning.

The only departure from this isolationism evident in Swedish policy is her support of the United Nations, and her continuing membership with Norway and Denmark in the Nordic Council. Sweden has deployed troops for United Nations use, but the Nordic Council has confined itself mainly to non-military matters since Norway and Denmark reluctantly rejected the idea of a Scandinavian alliance, and joined NATO.

For Sweden, the policy of determined neutralism makes for a simplicity of military objectives. Influenced by the Finnish winter war, Sweden believes that even a small country can use force successfully against a powerful aggressor. The aim of Swedish forces is to keep the country out of war by showing such resolution and capacity that any aggressor will consider the price of conquest too high.

In support of this aim, Sweden maintains land/air, sea/air, and air defence systems, of which the latter two are held at a high degree of readiness. The sea/air system is made up of surface and submarine vessels, the largest being cruisers, and mine fields and coastal batteries. Aircraft can be called into naval surface action from the air force, which operates fighter, reconnaissance, and ground attack components for air defence, sea/air, and land/air roles. An increasing amount of protection is given both air and naval forces by dispersal and rock shelters.

The army is a citizen army trained through compulsory service for rapid mobilization around local depots. The army is equipped for mobility over rough terrain, and substantial fire power is provided by armour, artillery, and missiles. The army is backed by local defence and home guard units, and military preparedness also extends to civil defence. Civil defence measures include those for evacuating 2,800,000 people from cities, and rock shelters for 100,000.

Nearly all military equipment is Swedish made, though the more complicated parts are now imported. High standards of equipment are maintained, and this policy leads to the need for a defence research establishment, and a reported allocation of some 65% of defence expenditure to new equipment (as compared—by Swedish figures—to 10%-20% in Norway). Sweden has considered developing her own tactical nuclear weapons. Annual defence expenditure is about 5% of GNP.

Denmark

Denmark would have supported a Scandinavian defence alliance sympathetic to the West, but when faced with a choice between sharing Sweden's isolation or joining NATO with Norway, she chose the latter. Danish support of NATO is however by no means unanimous; her defence policy is balanced precariously between advocates of complete neutrality, and those willing to pay at least a minimum price for good standing in NATO.

The reasons for this attitude are partly historical, and are also shared to a great extent with Norway: both realize their only hope is in collective security, but both have limited means, a natural sympathy for neutrality, a desire not to provoke the USSR, an outlook toward Scandinavia rather than Europe, and a skepticism about NATO's ability to provide an effective defence. In concert with Norway, Denmark bans all foreign forces and nuclear warheads, reflecting her support with Norway of a northern nuclear-free zone as a step toward nuclear disarmament. However the anti-nuclear doctrine applies only to continental Denmark; the US base at Thule in Danish Greenland is a vital link in NATO strategy.

Denmark is vulnerable strategically, for she lacks any barrier to separate her from the north European plain. Her strategic importance derives from her position beside the exit to the Baltic, and from the fact that she provides an invasion route to Norway and Sweden.

The Danish contribution to NATO is earmarked for emergency use rather than permanently assigned. It is mainly a land/air system based on an infantry division and a tactical air component containing the normal fighter-bomber and reconnaissance elements. The navy is a modest surface and submarine force, backed by some fortifications, designed for coastal defence. The air system contains a small interceptor element.

Denmark has been in receipt of US arms since 1950, and most of her equipment is of foreign origin. Conscription is in effect, and defence expenditure is about 3.5% of GNP.

Iceland

Iceland is worthy of mention in this survey if for no other reason than to illustrate a nation which has a defence policy without a military policy. Iceland's defence policy is to accept the collective security afforded by NATO, in return for which she permits US forces to be stationed on her strategically valuable territory. She has no armed forces, though she musters eight armed fishery-protection vessels.

The Southern European Powers

General

Among the southern European NATO powers, Italy, Greece, and Turkey, there do not exist the sentimental ties of Scandinavia nor a sharing of the powerful threat facing Central Europe. The Alps bar Italy from the central front, distance removes her from the extreme southern flank, and she has no practical or sentimental ties with either Greece or Turkey. Greece and Turkey, on the other hand, long-standing foes, share a poverty that Italy has not experienced for over a decade, and are face to face with the iron curtain. Finally, unlike the general situation in the regions already discussed, and unlike Italy, Greece and Turkey recall Portugal in having military establishments which are important forces in domestic politics.

The last nation to be discussed in this group is Yugoslavia. Although not a member of NATO, she is not a member of the Warsaw Pact, and thus pursues an independent policy worthy of this study's attention.

Italy

Strategically, Italy has been described as the most protected of the continental European powers. However her admission to NATO in 1949, two years after a harsh peace treaty, was welcomed as a return to diplomatic grace even if most of her political parties were otherwise unfavourably inclined. Italy's defence policy continues to be based on a firm allegiance to NATO, which includes acceptance of allied forces and in 1960-63 the placing of nuclear-armed Jupiter IRBMs on Italian soil. Italy's support of disarmament was evinced in her prompt signature of the atomic test ban treaty, but she has reserved judgement on the question of a multilateral nuclear force until a definite decision is reached outside Italy. Italy is generally considered as lacking the desire and the resources to build her own nuclear force.

Most of Italy's forces are assigned to NATO, and are controlled by AFSOUTH. AFSOUTH has headquarters in Naples and is responsible for the defence of the Mediterranean NATO area, including Greece and Turkey. Italy's land/air system has some ten infantry and three armoured divisions, Alpini brigades, and tactical and reconnaissance air. Italian land forces are considered flexible and lightly armed, suitable for mountain fighting. These attributes, plus Italy's location and the fact that her army is potentially larger than the Turkish, could lead to her forces being used in an emergency to support the other national forces in AFSOUTH. The air system is defensive only; a modest number of interceptors supplemented by Nike missiles. The sea/air system is made up of surface escort, maritime air, and submarine elements. The largest ships are cruisers.

U.S. military aid, beginning in 1947, totals some \$2,000,000,000, but Italian industry is producing a considerable amount of military equipment either under licence or of Italian development. An Italian aircraft, for instance, was successful in the NATO light weight fighter competition. Military expenditure is about 4.0% of GNP, and conscription is in force.

From 1952 to 1962, a surge of economic growth doubled Italy's national income, tripled her industrial productivity, and quadrupled her exports. In 1962-63 a rapid rise in wages and serious crop failures resulted in inflation and a massive increase in imports. Italy is prosperous and has substantial currency reserves, but her economic problems strongly affect her chronically unstable political situation. The Moro-Nenni coalition has pledged continued support of Italy's established foreign policy, but the key parliamentary position occupied by the communist minority has led some observers to speculate that Italy may tend to a neutralist stand, although within NATO. One consequence of this might

be an advocacy of the disarmament and neutralization of West Germany. Italy's political situation is precarious, and changes in policy should not be unexpected.

Greece

In the defence of Europe, Greece along with Turkey lies on the right flank. The sea lanes from the Black Sea to the Mediterranean pass through the Greek islands; and the sea lanes from Europe to the Middle East pass her southern coast. The communist nations of Albania, Yugoslavia, and Bulgaria stand at her northern frontier. For Europe, Greece is strategically both valuable, and exposed.

Greece's relations with her neighbours are not tranquil. She has differences of varying severity about frontiers and minority groups with Albania, Yugoslavia, Bulgaria, and Turkey. These differences are not altogether mitigated by the fact that Greece and Turkey are allied in NATO, and that Yugoslavia, Turkey, and Greece are signatories of the Balkan Pact of 1954.

Greek forces are adapted to the defence of rugged frontiers and an island-studded inland sea. The land/air system contains 120,000 ground troops in 11 infantry and an armoured division, and a tactical air component of fighter-bomber and reconnaissance elements. The area most suitable for armour is around Salonika; elsewhere it is mainly infantry country, and Greek infantry weapons and tactics are adapted to rugged terrain and the guerilla methods proved in the communist rebellion of 1946-49. The sea system includes surface escort and a few submarine vessels and some landing craft, but apparently no air element. The air system is small and is confined to modest air defence and transport roles. Greek forces are immediately available to AFSOUTH for defence of the Mediterranean NATO area, and the extent of Greece's support of NATO was indicated by her offer, which as it turned out did not have to be accepted, to base nuclear-armed IRBMs on her soil.

Greek forces are supported by conscription, the normal term of service being a long 24 months. Most if not all equipment is of foreign manufacture. Military expenditure has been relatively high, but should go below 5% of GNP in 1963-64.

Any consideration of Greece must recognize her economic and political situation. By 1963 US aid totalled some \$3.5 billion and this stimulus, reflected in an annual economic growth rate of some 6%, has been strengthened by Greek associate membership in the EEC. However Greece is not prosperous; the Greek economy is under-industrialized and constantly vulnerable to an imbalance between industrial imports and agricultural exports. Politically, there is strong evidence of repression in the Greek political system, a repression that appears to be aided by the army. A continuing disregard of fundamental problems, reflected in such indicators as the low per capita income of \$350 per annum, may eventually undermine the stability of Greek policy, though more immediately critical may be her relations with Turkey.

Turkey

Turkey has a strong sense of national identity, which kept her independent and neutral through World War II and still strongly influences her actions. She is also traditionally hostile to Russia. She is also traditionally important in European defence because she along with Greece controls the routes to the Black Sea; she stands at the gates to the Middle East; and she forms a salient stretching far along the southern Soviet flank. However she is also strategically vulnerable; she is the only country beside Norway having a common border with the USSR; her whole northern coast is exposed to invasion; she could be outflanked by a move through northern Iran into the Iraq plains; and she might be difficult to reinforce if attacked.

Turkey's defence policy includes membership in the UN, the Balkan Treaty with Greece and Yugoslavia signed during a time of Stalinist Soviet pressure, the Baghdad Pact through which CENTO provides some dubious security to her southern borders, and NATO. She is not diplomatically active: although she was productive in promoting CENTO, she has not followed through to any position of leadership.

Turkey maintains an impressive number of men under arms; about 500,000, with a mobilization potential of 2,000,000. Her sea system contains defensive surface and submarine vessels, but lacks air elements. The land/air system is predominant, made up of a 400,000-man army and a tactical air component. The ground force has only one armoured division, but much of the country is infantry country. The air system is made up of defensive fighters and some Nike.

The military establishment is supported by conscription, with periods ranging from two to three years. Turkey is dependent on foreign sources for nearly all her armaments: in the army all weapons from machine guns up are US-made; most naval vessels are from US Mutual Aid. Turkey allows other NATO forces on her territory; she was a base for US nuclear-armed Jupiter IRBMs, and still contains the important US radar used to monitor USSR missile firings. Both Turkey and Italy accepted Jupiter missiles under a "double veto" system that gave the US and the host nation control over firings. Supporting her UN obligations, Turkey still maintains a small detachment of troops in Korea.

Turkey's delicate internal situation should be remembered in any consideration of her defence policy. Turkey is poor; she suffers from the impact of a rapid population increase on a sluggish economy, and needs to control a large chronic trade deficit. Educational and other domestic reforms are urgently needed, but are help up by a continuing political stalemate. The army is a force in Turkish politics, but not as a participant; its traditional role is as a "Guardian of the Revolution", intent on establishing a political and government system. The Turkish army has however shown signs of abandoning its neutrality to ensure that reforms are delayed no longer by the political stalemate.

Yugoslavia

Although Yugoslavia is far more secure than during the days of Stalinist threats and belligerence, she occupies a somewhat precarious position between East and West. Her relations with Albania are not warm, and there are points of disagreement regarding her border with Greece. Strategically, she offers the Soviet long-sought ports into the Mediterranean.

Her defence policy can in the main be described as armed neutrality. Some tentative overtures with NATO were broken off in 1953; the Balkan Alliance of 1954 with Greece and Turkey seems to have fallen inactive, and a unilateral guarantee by Britain does not appear to count heavily in her policy calculations. However unlike Sweden, Yugoslavia has not had the economic base for completely self-sufficient neutrality, and has relied heavily on British and especially US military and economic assistance.

Apart from light naval units—mainly escorts and minesweepers—the main Yugoslav force is a land/air system of some 30 divisions and 500 US-made tactical aircraft. Conscription is in force, and there are about 1,000,000 reservists for the army.

Yugoslavia received over \$700,000,000 in military aid from America between 1950 and 1959, but the economic blockade imposed by the Soviet in 1948 encouraged the development of an armament industry, and a Yugoslavian training aircraft has been developed. There are some signs that Soviet combat aircraft be acquired in the near future. Defence expenditure is reportedly some 15% of the "national income".

The Pacific Ocean Powers

General

In this final section of the paper, we turn from Europe to consider two powers on the other side of the globe. Those two nations, Australia and Japan, present a multiplicity of contrasts. In Australia, a few Europeans populate a vast continent, and debate their involvement in Asian affairs. In Japan, a bursting Asian population presses at the shores of a small island chain, and is eager for greater participation in the world. Each however finds hostile forces uncomfortably near, and each is many miles from powerful allies.

Australia

The Chinese threat to India, the Malaysia-Indonesian conflict, and the war in South Vietnam are dominant and by no means distant features on the Australian strategic horizon. More directly, Indonesia has announced support for any liberation movement that may arise in the Australian areas of New Guinea, and Indonesia with Soviet aid has become a major military power in an unstable South East Asia.

In these circumstances, Australia appears to be making an effort to participate more positively in Asian diplomatic affairs than she has done in the past. At the same time, she holds membership in SEATO, ANZUS, and (with Britain and New Zealand) in ANZAM, but the security these alliances afford is at present a little unclear. By 1960, Britain's desire to relinquish military duties in the area seemed obvious, and the United States had shown a decided lack of sympathy for Australia's concern over an Indonesian New Guinea. However the isolation these developments portended has been offset, to some extent by Britain's continuing commitment in Malaya, but more so by recent US action in pledging the defence of East New Guinea and erecting a radio station in Australia as part of the Polaris deterrent system.

While there may still be some validity in Australia's time-honoured assumption that help from Britain or the US would always be forthcoming in the clinch, she must be aware that Britain is military over-extended, and that even the US may be too involved elsewhere to lend support in an emergency.

Prior to 1963, Australian military policy was to maintain flexible, conventionally armed forces for forward deployment anywhere in the South East Asian area of Australia's strategic interest. The distances in this area call for forces with mobility and ready availability, while the political situation lent value to a capacity to work either alone or with allies.

Australian forces have been cold or limited war forces. The sea/air system has destroyers and a carrier as its largest ships supported by helicopters and maritime air and submarines for maintaining sea communications. It can also provide troops with an extra measure of strategic mobility. The army, manned by voluntary service, has been organized for mobility and immediate effectiveness. With air force fighter and tactical transport components, the army is the basis of a land/air system adapted to tropical operations of modest size, lacking in armour but with equipment designed for air transportability. The air force provides some strategic airlift, as well as fighter and bomber-reconnaissance elements.

In fulfilment of its various treaty commitments, Australia maintains bomber and fighter air, and a battalion of land forces, in Malaya; and a fighter air contingent in Thailand.

Australian defence expenditure since 1959 has been about \$480,000,000 per annum, a little more than 3% of GNP. However in mid-63, accompanying a statement that Australia would defend Papua and Eastern New Guinea, a new defence program was announced which would raise expenditures to some \$670,000,000 by FY1966. The main features of this program were the acquisition of new submarines, guided missile destroyers, and more fighters, and thus the program seemed to be consistent with existing military policy, and to represent a strengthening of forces in the face of a militant Indonesia. However later in 1963 Australia announced the purchase of 24 American-built F111A aircraft for delivery in 1966, with provision for the acquisition of two squadrons of B47 aircraft if needed before that date. Although official statements are lacking, and the purchase has been explained as simply a replacement of the present obsolete Canberra force, the action could be a quite revolutionary move toward a positive strategic deterrence. Australia is prosperous, but her industrial base is so sparse that she can be considered economically under-developed. She has had difficulties with inflation and balance of payments. Whether she can afford a military establishment incorporating both strategic deterrent and limited war forces as well will be interesting to discover.

Japan

If Australia has sometimes cast about insecurely for the American presence, Japan has experienced something of the opposite predicament. Under a benevolent but rather watchful American eye, Japan has climbed from the devastation and humiliation of 1945 to almost full recovery. With her economy healthy and her political situation stable, she is waiting impatiently to move onto the stage of world affairs. Increasingly motivated by a strong and rising nationalism, sensing keenly the need for a national destiny, she has been called "...a nation of enormous vitality, aching for a position of world leadership."

The US-Japan Security Treaty is basic to Japan's defence policy, and the US is still a strong influence on Japanese affairs generally. American naval and air bases remain, but US ground troops were withdrawn in 1957, after which Japan was permitted to begin re-building her own defence forces. There are still important points of difference with the US and the USSR, but for the present Japan shows no fervent desire to resolve these differences, least of all by force, and seems more concerned with promoting her economic position in Asia and further abroad.

Japan's military posture is in consequence purely defensive, and has three basic objectives: to support the UNO and promote international co-operation; to build forces within national capabilities to the extent necessary for self-defence; and to cope with aggression by action within the terms of the US-Japan Security Treaty.

These objectives lead to a land/air system based on some 13 light and mobile divisions scheduled to grow to some 180,000 plus a reserve by 1966. The land/air system contains tanks and artillery and a small tactical air component, but the air system is predominantly an air-defensive force of interceptors and missiles. The sea/air system has reconnaissance air, surface components, and some submarines, and is designed for escort and harbour defence duties reflecting Japan's vital dependence on imports.

Defence expenditure is about \$675,000,000 for 1963. There is manufacture of US equipment under licence, but this is accompanied by some national research and development, and a move toward the production of Japanese equipment. Military service is voluntary.

TABLE 1. COMPARISONS OF POPULATIONS, FORCE SIZES, AND DEFENCE EXPENDITURES

NOTE: These figures are intended to be descriptive only, and should not be accepted as definitive.

Secondary Nuclear Powers	Population	Forces	Defence Expenditure	GNP
Britain.....	54M	433,000	\$5.1B	7%
France.....	48M	630,000	\$4.0B	7.4%
<i>European Powers</i>				
West Germany.....	55M	404,000	4.6B	6%
Belgium.....	9.25M	110,000	\$444M	3.4%
Netherlands.....	12M	141,000	\$68M	5.0%
Luxemburg.....	320,000	5,500	\$7M	1.6%
Portugal.....	9.2M	102,000	\$176M	8.9%
<i>Scandinavian Powers</i>				
Norway.....	3.7M	36,000	\$197M	4.2%
Sweden.....	7.6M	80,000	\$594M	5%
Denmark.....	4.7M	49,000	\$225M	3.5%
<i>Southern European Powers</i>				
Italy.....	50.2M	470,000	\$1.5M	4.0%
Greece.....	8.5M	120,000	\$167M	5%
Turkey.....	29.5M	452,000	\$235M	5.0%
Yugoslavia.....	19M	300,000	\$830M	—
<i>Pacific Powers</i>				
Australia.....	11M	50,700	\$533M	3.3%
Japan.....	95.2M	243,000	\$675M	—

CANADA'S OBLIGATIONS TO THE UNITED NATIONS AND INTERNATIONAL OPERATIONS

By

Department of Secretary of State for External Affairs

Part I—*Canadian Obligations under the U.N. Charter*

Canada has always been interested in keeping the peace; no laborious study is required to determine Canadian disappointment at the failure of the League of Nations in 1938 nor to determine the singular spirit of unanimity which pervaded the Canadian Houses of Parliament seven years later in the discussions prior to the San Francisco Conference which laid down the principles under which the United Nations Organization was founded. A resolution was passed almost unanimously (202 to 5 (Independent members from Quebec) in the House of Commons with leaders of the four major parties voting assent) that proposed in part:

That this house endorses the acceptance by the Government of Canada of the invitation to send representatives to the (San Francisco) conference.

That this house recognizes that the establishment of an effective international organization for the maintenance of international peace and security is of vital importance to Canada, and indeed to the future well being of mankind; and that it is in the interest of Canada that Canada should become a member of such an organization.

That the charter establishing the international organization should, before ratification be submitted to Parliament for approval.¹

Mr. Martin in commenting upon the proposal before the House had this to say:

One need spend little time in impressing on the country and on themselves the need for order among the nations, the need of some organization by which we shall perhaps not stop war but through which we shall certainly guarantee the peace more effectively than we have in the past... the League (of Nations) failed... because... you cannot have responsibility without power. There is no point in having a perfect paper organization which, when it comes to securing the peace and enjoying peace, simply will not work... (these principles should (*inter alia*) underlie the world security organization...).

The world security organization must be fully equipped with necessary military force to meet its objective.

To bring this about there must be the closest political and military co-operation between the... major powers and other peace loving states (which) should play their part in the structure in a manner proportionate to their ability to contribute.²

Mr. Graydon added:

No nation (other than Canada) is more wedded to peace... an international organization must be created to maintain world peace and Canada must give full support to such an action.³

¹Hansard, p. 21, 1st Session 1945.

²Hansard, p. 41, 1st Session 1945.

³Ibid, p. —, 1st Session.

And Hon. Louis St. Laurent:

...we have to provide an organization with teeth in it, and the teeth have to be provided by an undertaking to be made by each signatory that he will contribute forces prepared to fight if needs be... A country cannot be a full member of this organization without being prepared to call upon its human and national resources to contribute to the common pool.¹

Shortly after the successful conclusion of the San Francisco conference the House agreed to the motion of Mr. St. Laurent that Parliament approve the agreement establishing the United Nations and the statute of the International Court of Justice. Subsequently Canada's instrument of ratification of the United Nation Charter, following approval of Parliament, was deposited in Washington. Canada became an original member of the United Nations on November 9, 1945.

Under the Charter the Security Council was given primary responsibility for the maintenance of international peace and security. In this field the Council had two broad types of powers. Chapter VI entrusted the functions of promoting pacific settlement to the Security Council while under Chapter VII the Council had enforcement powers, including the ability to take decisions binding on all members. The concept of collective security in Chapter VII was predicated on Great Power agreement and the overwhelming superiority of armed force derived from the forces of the permanent members whose Chiefs of Staff were to constitute the Military Staff Committee.

Unlike the Covenant of the League of Nations, the United Nations Charter made provision in Chapter VII (Article 43 and following) for the establishment of international military forces and for United Nations action to maintain or restore international peace and security. The idea was that military units should be placed at the disposal of the Security Council through special agreements negotiated with member states. This permanent United Nations army was to be used for such military operations as the Security Council deemed necessary to maintain international peace and to carry out its decisions. It was envisaged that on occasion this might extend to direct military action against an aggressor nation.

It was thought that these enforcement powers would come into play only after the various peaceful means of settlement outlined in Chapter VI had been exhausted. The Council could then call upon members to join in the application of non-military measures or sanctions (Article 41). If this proved insufficient, then as a last resort the Council could undertake forcible action.

The actual use of enforcement measures was regarded as a remote contingency at San Francisco, since the mere willingness of the Great Powers to use force would, it was thought, act to restrain any likely combination of smaller or middle powers. Moreover, Chapter VII had to be read along with the chapter on voting procedure in the Security Council. Under this procedure, any one of the five Great Powers could veto the application of enforcement arrangements. Thus, in practice, the United Nations could not use force against a Great Power or indeed against any other state if one of the Great Powers employed its veto.

While these weaknesses were foreseen and understood in 1945, it was widely believed that Chapter VII provided the outlines of a complete scheme of enforcement which could be built upon and which, ultimately, would give the United Nations the right and the power to restrain any aggressor state.

Unfortunately the weaknesses of Chapter VII soon became all too apparent. The major powers were unable to agree on the composition of these

¹Ibid, p. 1383, 2nd Session.

United Nations military forces, the total size of the United Nations army, the relative strengths of the various national contingents, on a policy concerning military bases and various related questions. These early divisions have deepened and persisted.

Thus, the underlying assumption on which this security system was based proved to be illusory. No more than two years after the signing of the Charter it became apparent that the system of security provided for in Chapter VII would not be effective because of failure to reach agreement among the permanent members of the Security Council. It also became apparent that the United Nations was in no way capable of taking collective action against one of the great powers. No great power would readily subordinate its decision to collective judgment when its political interests were at stake, nor were there means by which the Organization could deal with aggression resulting from a great power conflict. The Organization was unable to use the military resources of the great powers directly in dealing with other threats to the peace for fear of great power intervention in the situation.

Although the Military Staff Committee has continued to hold regular meetings, these have been rather perfunctory and devoid of any real meaning. No agreements have ever been concluded under Article 43 placing military forces at the disposal of the Security Council.

The Organization has been revitalized as a result of the change in thinking and emphasis in the years since the breakdown of the original Charter system. This transition has been a gradual and pragmatic process. The enforcement provisions of Chapter VII were tacitly abandoned for recommendatory measures. For example, the Security Council has in practice found it necessary to select the most expedient measures for the preservation of peace. Thus, on occasion it has recommended the setting up of international military forces under United Nations control and irrespective of the provisions of Article 43. In the case of the Congo, for example, the Security Council authorized the Secretary-General to provide military assistance to the Government of the Republic of the Congo. The peace-keeping force which was set up on the basis of these Security Council resolutions is obviously military aid of an entirely different character than the military forces foreshadowed by Article 43.

Steps were also taken to permit the General Assembly rather than the Security Council to initiate peacekeeping action in certain circumstances. UNEF was set up by the General Assembly in 1956 under the "Uniting for Peace" procedure. In its 1962 Advisory Opinion the International Court upheld the legality of the Assembly's action in creating UNEF, ruling that while the Security Council has the exclusive right to order coercive action, the powers of the General Assembly include the right to recommend measures for the peaceful adjustment of any situation. As a further development, recourse was had to the military resources of the smaller powers. Canada was among the first to realize that due to this evolution much of the responsibility for preventing or limiting the scope of international conflicts would shift from the great to the so-called middle and smaller powers. Over the years Canada has consistently supported and on occasion taken the lead in the major peacekeeping initiatives of the United Nations.

The peacekeeping forces in which Canada has participated and in which she continues to participate are of a different kind and have little in common with the use of coercive action to counter aggression foreseen in Chapter VII. They are essentially peacekeeping and not fighting forces, and they operate only with the consent of the parties directly concerned. It is worth noting that all the permanent members of the Security Council have, at one time or another in the past 19 years, voted in support of the creation of one or other

of these U.N. peacekeeping forces; and that none has in any case gone further than to abstain in voting on their authorization.

Peacekeeping Operations

Since 1945 the United Nations has been involved in missions or "operations" of a peacekeeping nature in widely-scattered parts of the world, from Palestine to the Congo and Cyprus to West New Guinea. Canada has firmly supported the United Nations in these endeavours and Canadian military personnel have seen service with the United Nations in Kashmir (UNMOGIP) (1949-), Palestine (UNTSO) (1949-), Korea (1950-53), the Gaza Strip and the Sinai Peninsula (UNEF) (1956-), Lebanon (UNOGIL) (1958), the Congo (ONUC) (1960-64), West New Guinea (UNTEA) (1962-63), Yemen (UNYOM) (1963-) and most recently in Cyprus (UNFICYP) (1964). At present about 2,200 Canadian military personnel are serving with various U.N. peacekeeping operations (see Appendix).

Characteristics of United Nations Forces

There have been four major U.N. peacekeeping operations: in Palestine (UNEF), the Congo (ONUC), West New Guinea (UNTEA) and Cyprus (UNFICYP). Although each of these forces has differed in composition, nature and task, they have shared certain common characteristics. Secretary-General U Thant has described the fundamental characteristics of UNEF, ONUC and UNTEA in the following terms:

All three were improvised and called into the field at very short notice; all three were severely limited in their right to use force; all three were designed solely for the maintenance of peace and not for fighting in the military sense; all three were recruited from the smaller powers and with special reference to their acceptability in the area in which they were to serve; all three operated with the express consent and co-operation of the states or territories where they were stationed, as well as of any other parties directly concerned in the situation; and all three were under the direction and control of the Secretary-General acting on behalf of the organs of the United Nations.

In the case of the Unified Command in Korea, the United Nations entrusted a group of countries with the responsibility of providing independently for an international military force serving purposes determined by the Organization. This operation constituted a diversion in the main development of United Nations peacekeeping. For the first time, the Organization had to deal with a major military conflict in which the interests of the Great Powers were not far removed. The prompt response to this challenge required that the United Nations break new and significant ground. Up to that time, it had been assumed that because of Soviet intransigence, the Charter provisions concerning collective military measures could not be implemented. In this situation of grave necessity, the Security Council was able to take forthright and effective action mainly because the Soviet Union boycotted the Council and was therefore not in a position to use its veto.

The concept behind UNEF, ONUC and UNFICYP is a fundamentally different one. These have a truly international character, affirmed by the Regulations governing the three forces. In each case these forces have the legal status of subsidiary organs of the United Nations and as such they enjoy the status, privileges and immunities of the Organization itself.

Members of UNEF, ONUC and UNFICYP, although remaining in their national service, are, during the period of their assignment, international personnel under the authority of the United Nations and subject to the instruc-

tions of the Force Commander. The Regulations specify that the functions of the force are exclusively international and that members of the force shall discharge these functions and regulate their conduct with only the interest of the United Nations in view. On the whole this attempted marriage of national service with international function has been successful in practice.

Other United Nations Peacekeeping Operations

Canada has participated in a number of military observer groups set up under United Nations auspices. In 1948 a United Nations Observer Group (UNMOGIP) was established to watch over the Kashmir truce agreement. It has succeeded in keeping the peace in Kashmir ever since, despite the failure to devise a satisfactory solution to the dispute.

In July 1948, the conclusion of the first truce agreements in Palestine led to a wider use of military observation teams by the United Nations. The observers who worked under the United Nations Mediator in this area later became the United Nations Truce Supervisory Organization (UNTSO), entrusted with supervision of the armistice agreements between Israel and her Arab neighbours. UNTSO has proven to be an essential factor in keeping the peace in the Middle East and much of the know-how for subsequent peacekeeping operations has been derived from this experience.

The conflict in Lebanon in 1958 led to the establishment by the Security Council of an Observer Group (UNOGIL) to ensure that no illegal infiltration of personnel or supply of arms occurred across the Lebanese borders. On occasion UNOGIL acted as a committee of good offices, helping to reconcile differences among the various political factions in the country. UNOGIL was withdrawn from Lebanon by the end of 1958.

In the course of the past 18 months one U.N. peacekeeping operation was concluded and two more were begun. Canadians participated in all three. The first was of an unusual character for the U.N. since it involved the assumption of administrative duties over a non-self-governing territory for a limited period. That territory was West New Guinea (West Irian) which for a seven-month period between the withdrawal of the Dutch and the transfer of sovereignty to Indonesia was administered by a United Nations Temporary Executive Administration (UNTEA) backed by a U.N. security force. Canadian Otter aircraft, with air and maintenance crews, were part of the U.N. force in this operation.

The second operation, still continuing, was undertaken at the request of the Governments of the United Arab Republic, Saudi Arabia and Yemen. By a Security Council decision of June 11, 1963, a team of U.N. observers was despatched to Yemen to observe, certify and report on the implementation of the disengagement agreement concluded by the U.A.R. and Saudi Arabia. The air component of the Yemen Observation Mission consists of Canadian aircraft and crews. Although UNYOM has had a useful deterrent effect, implementation of the disengagement agreement has proceeded slowly and imperfectly and is still far from fulfilment.

The third operation, by far the largest of the three, has involved substantial movements of Canadian troops and equipment to Cyprus. In response to a request by the Secretary-General of the United Nations, Canada has authorized a total contribution of 1,200 men and equipment to the United force in Cyprus (UNFICYP). Within hours after Parliamentary approval of the Canadian contribution an advance party left to prepare for the arrival of the main body of Canadian troops. Canadian troops began operational duty on March 27, 1964 and with the arrival three days later of HMCS BONAVENTURE and RESTIGOUCHE carrying additional personnel and patrol equipment the Canadian contingent became fully operational. Under the original terms of reference

for the U.N. force in Cyprus a time limit of three months was specified as the duration of the force. This period has now been extended for a further three months, ending September 26, 1964.

The Indochina Commission

Canada is also playing a part in important peacekeeping operations which are not in any way connected with the United Nations, that is, the three International Commissioners for Supervision and Control in Cambodia, Laos and Vietnam.

In 1954, to deal with the serious crisis resulting from the war between the French and the Viet Minh in Indochina and to prevent the expansion of the conflict into what might have become an all out war between the great powers, a conference was held in Geneva. This conference arrived at a settlement which was embodied in three Agreements, one for each of the three successor states of former French Indochina. Each Agreement provided for an International Commission to supervise and control its implementation, and Canada, together with India and Poland, agreed to staff these Commissions. (It was, of course, the parties themselves, and not the International Commission, who were responsible for the *implementation* of the Agreements.) It was not possible to use United Nations machinery to deal with the Indochina problem because some of the parties principally concerned were not members of the United Nations.

It is now ten years since we accepted the responsibility of membership of these Commissions and there seems unfortunately little likelihood that we will soon be relieved of these obligations which involve a Canadian commitment of approximately one hundred civilian and military personnel.

The Commission in Cambodia (a country which remained unified under the settlement) has largely accomplished the task set for it by the Cambodia Agreement and it has therefore been possible to reduce its establishment to what amounts to a token representation. In our view the Cambodia Commission could well be withdrawn but we have acceded to the request of the Cambodia and South Vietnam. The decision to investigate these incidents

At the request of the Cambodian Government the Commission has investigated a number of border incidents occurring along the frontiers between Cambodia and South Vietnam. The decision to investigate these incidents has been taken by an Indian-Polish majority, with Canada dissenting on the grounds that the Cease Fire Agreement did not empower the Commission to investigate conflicts between Cambodia and countries which were not parties to the Cease Fire Agreement (i.e. other than Cambodia and the Democratic Republic of Vietnam). Because the South Vietnamese Government does not afford co-operation to the Cambodia Commission in its investigation of border incidents, the reports and conclusions of the Commission on border incidents have been necessarily one-sided.

In Laos it appeared in 1958 that, with the reunification of the country under a Coalition Government, the work of the International Commission was over. The Commission was therefore adjourned *sine die* and all its personnel were withdrawn. Unfortunately the settlement broke down and a new Conference had to be called. This Conference met in Geneva in 1961-62 and produced new Agreements on Laos. Under these Agreements the International Commission was revived with the same membership as before, Canada again undertaking a commitment involving approximately thirty civilian and military personnel. We have not been at all happy with the way in which the Laos Commission has been functioning. The unanimity rule which operates within the Laotian Coalition Government together with the unhelpful attitude of the Polish Commissioner having seriously frustrated the Commission in the

carrying out of its responsibilities. It now appears that, with the recent deterioration of the military situation in Laos, there is a strong possibility that yet another international conference will be held to consider the situation in that unhappy country.

The Vietnam Commission successfully completed the first part of its mandate: the withdrawal of forces to either side of the 17th parallel and other questions connected with the disengagement of opposing forces. At the same time it was found to be impossible to reach agreement on the political settlement (election leading to reunification) envisaged in the Cease Fire Agreement and the Final Declaration of the Geneva Conference. As a result the Commission has not been withdrawn.

The Commission operates today in what is in effect a renewal of the civil war. There has in other words been a virtual breakdown of the Cease Fire Agreement. The Commission has however a continuing mandate to supervise the execution of the Agreement as it affects the import of arms and subversion. In 1962 the Commission issued a Special Report, with the Polish member dissenting, finding that North Vietnam had engaged in hostile activities aimed at the overthrow of the government of South Vietnam and that South Vietnam had permitted the import of arms to an amount greater than that permitted under the Agreement. The South Vietnamese and the United States have justified their action by pointing out that the arms imports would come to an end when Northern subversion against South Vietnam itself came to an end.

Since the Special Report the Commission has relapsed into inactivity. We have been unable to convince our colleagues of the necessity for continued action on the subversion issue.

Although such a situation might argue in favour of winding up the Commission, the latter's presence may nevertheless remain of value in preventing a bad situation from getting worse. The Geneva Agreements represent the last symbol of international agreement on Indochina. We should therefore hesitate before taking final action to terminate them.

Administration and Operation

When a request is received from the Secretary-General of the United Nations for Canadian help in a peacekeeping operation, a joint submission from the Minister of National Defence and the Secretary of State for External Affairs may be made to Cabinet asking for Government approval to provide the required personnel and equipment for the operation.

When the request would require a substantial Canadian contribution, the established procedure is to seek parliamentary approval within 10 days of the passing of an order-in-council. Because of the experience that has now been built up, the request itself will be fairly specific as the Secretary-General and his military advisers will have discussed what Canada might be able to provide with the Canadian Delegation to the United Nations in New York, to which is attached a military adviser. If Cabinet agrees, the Department of National Defence is responsible for selecting the appropriate personnel and equipment and sending them to the area concerned, while External Affairs is responsible for negotiating conditions of service, and making any necessary arrangements through the United Nations with the country or countries to which the service personnel will be posted. Canadian diplomatic missions on the spot provide all appropriate assistance.

In United Nations peacekeeping operations policy direction is given by the Secretary-General, sometimes assisted, as in the case of the Congo, by an advisory committee representing the contributing powers. In the case of the Indochina Commissions, which do not come under the United Nations, instructions regarding implementation of the cease-fire agreements are sent from External Affairs to the three Canadian Commissioners.

Establishment of Permanent U.N. Peacekeeping Machinery

Suggestions have been made from time to time for the establishment of more permanent security forces under the United Nations. As early as 1947-48 Secretary-General Trygve Lie proposed the creation of a permanent United Nations Guard, to be individually recruited by the Secretary-General for duties requiring specialized personnel e.g. guard duty, observer corps work, supervision of plebiscites, etc. These guard forces were to be "non-military" in nature and form part of the Secretariat. The plan failed to find support in the Assembly and as a compromise the United Nations "Field Service" was established to take care of transportation and communications between United Nations headquarters and United Nations operations in the field.

After the outbreak of the Korean War, Mr. Lie proposed the creation of a voluntary military reserve group or "United Nations Legion". This was a much more revolutionary proposal than the "United Nations Guard". The basic idea was that individual nations should recruit volunteers for United Nations reserves. These groups of national units would be given special training and held in permanent reserve for United Nations service. This plan failed to gain acceptance and was eventually shelved.

The Canadian view has been that ideally the United Nations should have a permanent international force of its own, in being, and under its orders, for peacekeeping duties. It is evident, however, that this is not feasible at the moment for political reasons. There are a number of reasons why the establishment of a permanent United Nations force would be premature at the present time. Many governments would not be prepared to accept the financial let alone the political implications of such an institution. Moreover, as Secretary-General U Thant has pointed out, there are a number of parallel developments which must precede the organization of a permanent peace-keeping force:

We have to go further along the road of codification and acceptance of a workable body of international law. We have to develop a more sophisticated public opinion in the world, which can accept the transition from predominantly national thinking to international thinking. We shall have to develop faith in international institutions as such, and a greater confidence in the possibility of a United Nations civil service whose international loyalty and objectivity are generally accepted and above suspicion. We shall have to improve the method of financing international organization. Until these conditions are met, a permanent United Nations force may not be a practical proposition.¹

In the meantime much can be done to improve the present *ad hoc* arrangements. At the United Nations Canada has advanced these suggestions:

- (1) That there should be an exchange of experience among interested governments on the special military problems encountered in United Nations operations.
- (2) That a compact planning staff of military experts should be set up within the United Nations Secretariat to provide advice and assistance to the Secretary-General in organizing emergency peace-keeping operations.
- (3) That national governments should try to improve their own arrangements for assisting United Nations operations, e.g. by responding to U Thant's appeal for additional stand-by units which can be made available at short notice for United Nations service.

¹ Extracts from an address by Secretary-General U Thant to the Harvard Alumni Association at Cambridge, Massachusetts, on June 13, 1963. Published in *United Nations Review*, July 1963, p. 54.

There is a growing interest in practical measures of this kind, aimed at strengthening and improving the peacekeeping capacity of the United Nations. Canada was the first country to earmark national military units for United Nations service. The Nordic countries—Denmark, Finland, Norway and Sweden—have introduced legislation setting up stand-by contingents to be held in readiness for United Nations duties. The Netherlands has also created a United Nations stand-by force and, most recently, the Government of Iran announced its intention to take similar action. These are encouraging developments which have Canada's strong support.

U.N. Financing

Financing the United Nations would present few major hazards were it not for the political and financial repercussions of the Organization's peacekeeping operations. As of April 30, 1964, the cash deficit of the United Nations amounted to over \$124 million; more than 90 per cent of this sum—\$112.7 million—represented arrears owed on UNEF and ONUC costs. In short, the arrears problem has arisen from the unwillingness or inability of certain members to pay the peacekeeping expenses of the United Nations—despite the General Assembly's Acceptance of the advisory opinion of the International Court of Justice that these expenses constitute "expenses of the Organization", which all members are obliged to pay, and despite the granting of sizeable reductions in assessment to the developing countries.

Article 19 of the United Nations Charter provides for automatic loss of vote for member states more than two years in arrears on contributions. At least a dozen states are now in a position to lose their vote at the 1964 session of the General Assembly unless their arrears are reduced to a permissible level in the intervening period. The General Assembly may, however, restore the vote if it is satisfied that failure to pay was due to conditions beyond the defaulting states' control. The application of Article 19 to states in arrears because of failure to pay peacekeeping expenses would undoubtedly provoke a stormy debate.

Since the financial problems of the United Nations arise largely from the continuing disputes over peacekeeping operations, it is the Canadian view that the solution may lie in securing general agreement on long-term arrangements to cover peacekeeping financing. Such long-term arrangements would include a special scale of assessments based on the principles of collective responsibility and relative capacity to pay.

There has been no consistent formula for financing those peacekeeping operations which the United Nations has undertaken to date. The early operations, which extended little beyond the deploying of observer groups or truce supervision teams, were financed out of the Regular Budget of the United Nations. In the Korean War the expenditure was borne by the states which contributed troops, each covering the cost of its own men and materiel. The United Nations Emergency Force and the United Nations Operation in the Congo were and are financed from Special Accounts established for that purpose and for which annually negotiated special rates of assessment have been established. For both UNEF and ONUC the practice has been to grant reductions (varying from 50 to 80 per cent of the whole) to the developing countries as a form of recognition that such countries have a very limited capacity to pay. The shortfall created by such reductions has been made up in recent years by voluntary contributions from a number of Western developed countries which have shared equitably in this additional cost.

While UNEF and ONUC experience probably provides the clearest guideline for a future special scale, other quite different arrangements for peacekeeping financing have been adopted since these two major operations were

launched. In the case of UNYOM (Yemen) and UNTEA (West New Guinea), it was agreed that the total costs would be shared by the parties directly involved—the United Arab Republic and Saudi Arabia in the case of UNYOM, and the Netherlands and Indonesia in the case of UNTEA. The first three months of UNFICYP were financed on still another basis. Some countries contributing troops to the operation have financed their own contingents and the Secretary-General was authorized to receive voluntary contributions to cover other costs.

The question of United Nations financing—in particular the problem of financing peacekeeping operations—is essentially political rather than financial. The Soviet bloc countries argue that the Security Council has sole responsibility for the maintenance of peace and security, and also exclusive responsibility for the financing of United Nations peacekeeping activities. They insist that the operations in the Congo and in the Middle East have thus been improperly initiated and conducted. France has refused to pay its ONUC assessments on the grounds that the United Nations is not a super state and has no power to levy assessments unless the members concerned support the activity in question. The Arab countries believe that the victim of aggression should be exempt from assessment. Some of the Latin American countries, while willing to pay, have indicated their inability to pay even at the reduced rates of assessment. These are some of the conflicting views on peacekeeping financing which must be reconciled before any workable solution can emerge.

The prospects for arriving at such a solution in the near future are uncertain. On the initiative of Canada the Working Group of Fifteen (now the Working Group of Twenty-one) was established in 1961 in an attempt to negotiate a generally satisfactory solution to the Organization's financial problems. The Working Group has made some progress—it recommended the request for an advisory opinion from the International Court which eventually led to General Assembly endorsement of the principle of collective responsibility to pay—and the Group has elaborated other principles relating to United Nations financing. The Working Group has deferred its 1964 session pending the outcome of informal discussions among the Great Powers on machinery to deal with the financing of future peacekeeping operations. If no progress is made in these discussions and the Group's subsequent formal session, the likelihood of an East/West confrontation over Article 19 at the next session of the General Assembly becomes measurably greater.

Canada's basic objectives continue to be:

- (a) to ensure that the Organization is provided with sufficient funds to enable it to fulfil effectively its primary tasks under the Charter, in particular, the maintenance of international peace and security;
- (b) to develop sound administrative and financial procedures to place the financing of United Nations activities on an orderly basis and to ensure the prompt payment of assessments;
- (c) to foster the development and general acceptance of long-term financing arrangements for peacekeeping operations, including a special scale of assessments for peacekeeping, based on the principles of collective responsibility and relative capacity to pay;
- (d) to resolve the problem of arrears satisfactorily.

Canada contributes 3.12 per cent of the regular budget of the United Nations—a higher percentage than any other member of the United Nations which is not a permanent member of the Security Council. For the UNEF and ONUC operations Canada contributes at the same rate, as well as sharing in the voluntary contributions to meet the short-fall arising out of reductions allowed the less-developed countries. In addition Canada has contributed or pledged a total of \$1,500,000 to the United Nations Civilian Operations in the

Congo, and has absorbed additional peacekeeping costs by scaling down or writing off some United Nations debts for military services rendered. In the first three months of UNFICYP Canada has covered the full cost of its contingent (\$1,900,000) but intends to bill the United Nations for the costs of providing and maintaining the brigade headquarters and Canadian personnel on the staff of UNFICYP headquarters.

Part II—*Implications for Canadian Policy*

Recently there has been a renewed interest in the problems and techniques of United Nations peacekeeping. Inevitably, crises will continue to occur, from time to time, such as the Cuban confrontation, where direct negotiation among the great powers may afford the sole means of averting disaster and U.N. involvement is peripheral. This in no way diminishes what the United Nations has sought to do, and in most cases accomplished, as international conciliator and peacemaker. Nor will the demands made on the United Nations lessen in future though its function as peacekeeper may be more cautious in some respects than the intense activity of the recent past.

As the United Nations alone is not yet capable of ensuring world peace and security, Canada regards its membership in NATO and NORAD and its contributions to peacekeeping operations as complementary aspects of its foreign policy. In respect of lesser conflict, the United Nations has shown itself to be a valuable stabilizing and peacekeeping influence. However, as regards the deterrence of nuclear and major non-nuclear war, the method of proven record is the association of free nations in NATO. Canada continues to consider that support for the North Atlantic Treaty Organization and for NORAD are major cornerstones of its foreign policy.

In 1954, before the announcement of Canada's intention to serve on the International Supervisory Commissions in Vietnam, Laos and Cambodia, Mr. Pearson, then Secretary of State for External Affairs, declared before the House of Commons:

We have of course, through membership in the U.N., accepted the provisions of the Charter. Canada has therefore already definite, if general, obligation in the maintenance and restoration of peace and security in all areas where these are in danger.¹

The spirit of this announcement has gone far indeed in shaping both Canada's foreign and defence policies in the past decade. The White Paper on Defence announces a wide-sweeping reorganization of the Canadian armed forces, but no facet of the programme is of any greater significance than the extent of the adaptation of Canada's military forces to the role she has assumed in assisting the world-wide security effort of the United Nations.

It is clear that Canada will carry out as in the past a role which now more than ever she is equipped to handle.

The Secretary of State for External Affairs has declared that:

We must do more. We must strengthen the international capacity for keeping the peace. . . The Canadian Government is determined to explore and support practical ways of strengthening the peacekeeping methods of the United Nations.²

Accordingly the White Paper on Defence has announced:

The objectives of Canadian defence policy, which cannot be dissociated from foreign policy, are to preserve the peace by supporting

¹ Hansard Session 1953-54, May 28, 1954, p. 5192

² Address to Annual Awards Dinner of the Overseas Press Club of America in New York, May 28, 1963.

collective defence measures to deter military aggression, to support Canadian foreign policy including that arising out of our participation in international organizations, and to provide for the protection and surveillance of our territory, our air space and our coastal waters.

Canada's foreign and defence policies have been shaped by some of the major international developments of the post World War II period. The first in time and importance was Canada's adherence to the Charter of the United Nations, which created an obligation to support a system of international co-operation for the maintenance of peace and security.

...Foreign policy and diplomatic negotiation are of great importance, being vital instruments in encouraging such opportunities as may exist for accommodation and relaxation. But it is essential that a nation's diplomacy be backed up by adequate and flexible military force to permit participation in collective security and peacekeeping and to be ready for crises should they arise.

Conclusions

1. Through membership in the United Nations, Canada has accepted the provisions of the Charter. Canada therefore has obligations to assist United Nations efforts to maintain international peace and security. In the Canadian view peacekeeping activity has now moved beyond the stage of a practical necessity in the conduct of international affairs, and should be provided for as such.

2. The failure of the Great Powers to agree on the enforcement arrangements envisaged in the U.N. Charter has caused much of the onus for peacekeeping to devolve upon the middle and small powers. Canada is one of the relatively small number of countries which are qualified and equipped to undertake a variety of roles in the service of the United Nations.

3. Canada has contributed in the past and continues to contribute not only to the peacekeeping efforts of the United Nations but also to the International Supervisory Commission in Vietnam, Laos and Cambodia, acting in the spirit of the United Nations Charter. Canadian forces have undertaken such operations in accordance with the necessary parliamentary authority, as reflected in parliamentary debates and approved expenditures for these operations.

4. The Canadian Government is determined to do more towards strengthening the United Nations capacity for keeping the peace. We have advocated and will continue to work for the adoption of practical measures designed to go some way towards meeting the need for advance planning and organization. We believe that these steps must be linked with renewed efforts to devise long term arrangements for financing U.N. peacekeeping operations. Canada has reorganized her armed forces, in large measure, to provide assistance to duly authorized U.N. operations, subject of course to individual decision in each instance when a request is received from the United Nations. United Nations peacekeeping operations constitute a major area of activity for Canada's armed forces, and will continue to do so for the foreseeable future.

APPENDIX

CANADIAN MILITARY PARTICIPATION IN PEACEKEEPING AND
TRUCE-SUPERVISING ACTIVITIES SINCE NOVEMBER 9, 1945

Operation	Service Involved	Period of Participation	Personnel Involved	Annual Approximate Cost to Canada
United Nations Military Observer Group in Indian and Pakistan (UNMOGIP)	Army RCAF	Jan/49 (Cont.)	9 Officers 8 all ranks	\$ 89,000
United Nations Truce Supervisory Organization (UNTSO)	Army Navy	Jul/49 (Cont.) Jul/50 Sept/53	18 Officers 3 Destroyers	\$177,000 —
United Nations Command, Korea	Army	Jul/50 Sept/53	22,500 all ranks (1 Officer, 10R remaining)	— \$ 20,000
International Supervisory Commissions in Vietnam, Laos and Cambodia (I.S.C.)	Navy Army RCAF	Jul/54 (Cont.) Jul/54 (Cont.) Jul/54 (Cont.)	2-3 Officers 16 all Ranks 2-4 Officers	\$ 33,600 \$818,000 \$ 42,000
United Nations Emergency Force in Palestine (UNEF)	Navy Army RCAF	Dec/56 Feb/57 Nov/56 (Cont.) Nov/56 (Cont.)	HMCS MAGNIFICENT Sealift 858 all Ranks 86-275 all Ranks	\$3,930,000 \$612,000
United Nations Observer Group in Lebanon (UNOGIL)	Army	Jun/58 Jan/59	70 all Ranks	\$ —
Organization of the United Nations in the Congo (ONUC)	Army	Aug/60 Jun/64	250 all Ranks	\$1,424,000 (Subject to Reduction) \$256,000
United Nations Yemen Observer Mission (UNYOM)	RCAF Navy Army RCAF	Jul/60 (Cont.) Jul/63 Jun/63 Jun/63 Sept/63	6-19 all Ranks 1 Petty Officer 5 Officers 56 all Ranks	— — —
United Nations Temporary Executive Administration (UNTEA)	RCAF	Sept/62 Apr/63	13 Officers	—
United Nations Forces in Cyprus (UNFICYP)	Navy Army RCAF	Mar/64 Sept/64 (Estimated)	HMCS BONAVENTURE 1150 all Ranks 100 all Ranks	\$1,500,000 (three months) (Estimated)

AN INTERNATIONAL POLICE FORCE

By

J. KING GORDON

Introduction

There has been a tacit transition from the concept of collective security, as set forth in Chapter VII of the Charter of the United Nations, to a more realistic view of peace-keeping. The idea that conventional military methods—or to put it bluntly, war—can be used by or on behalf of the United Nations to counter aggression and secure peace, seems now to be rather impractical.

U Thant, Speech to Harvard Alumni, June 12/63.

The word “police” in the title of this paper may be taken to imply too much or too little.

In the nation state—or the province, county, city, town, or village—the “police force” is the instrument employed by the organized community to enforce the law. The police may be used to detect a breach of the law, to inhibit or arrest a lawbreaker, to protect citizens against assault or violence, to restore order and to bring lawbreakers to justice. The power and authority of the police rest on the organized community and the wide acceptance of the law. To apply the term “police force” in the context of international affairs today might seem to assume the integration of the world community and the general acceptance of world law—conditions that do not exist.

It is possible to argue, as many do, that our ultimate survival depends on the organization of the world community under a world government and subject to world law enforced by a world police.¹ But it seems clear that the purpose of this paper should not be to discuss an international police force on the basis of such assumptions. Its purpose is a more modest one: to examine the functions and possible structure of such a force in today’s world. The value of the analogy of a national or metropolitan police force is to remind one that an international police force has to have a measure of consensus from the world community if it is to fulfill its tasks.

A second implication of the term “police” might place too severe restrictions on our treatment. From this point of view we are not thinking so much of the police as an instrument of enforcing the law of the community as we are concentrating on the methods used to maintain order. Now it is true that an international force under certain circumstances will have to adopt “police methods” in the preservation or restoration of order, in the protection of individuals against violence—even in the direction of traffic. But United Nations’ Forces during the past fifteen years have had a great variety of assignments to which the term “police”, in the sense we have been using it, could not be appropriately applied. In many instances the international force has acted as a military force with limited objectives. It may be recalled that Lt. Gen. E. L. M. Burns, who commanded the United Nations Emergency Force (UNEF), was not happy about

¹ Grenville Clark and Louis B. Sohn: *World Peace Through World Law*

the term "paramilitary" which the Secretary-General had applied to the Force in one of his reports.²

If we avoid too literal an interpretation of the term "police" there is some advantage in using it to indicate a basically new development in the international approach to the problem of peace and war. Students of international affairs will point back to the Concert of Europe—a consultative arrangement among the great European powers—as the beginning of a sense of international responsibility for the maintenance of peace in modern times. The idea was broadened into a general concept of collective security that found expression in the Covenant of the League of Nations. The Charter of the United Nations restated the doctrine with modifications to take into account what were held to be the superior rights and responsibilities of the Great Powers. The Charter, however, did go beyond the Covenant in outlining detailed provisions for the organization of an international force to express the will of the international community in the event of a threat to the peace, a breach of the peace or an act of aggression. The failure to implement the peace-enforcement provisions of the Charter, due largely to disunity among the Great Powers, did not, however, block the peace-keeping endeavours of the United Nations. In a number of instances in which local violence threatened to escalate into major war, peace-keeping operations were mounted which contained the danger and opened the way to political negotiations and mediation of the dispute out of which had arisen the threat to international peace.

These operations and the forces involved in them differed essentially from those envisaged in Chapter VII of the United Nations Charter—a difference noted by the Secretary-General in the quotation at the head of this section. It is this difference which calls for a new terminology and for want of a more exact phrase we use the term "international police force".

In the course of this paper it will be necessary to give a little attention to the transition from the concept of collective security to that of peace-keeping. We shall then examine the types of operations in which the United Nations has introduced an international force. And finally, we shall bring together a number of ideas on how permanent arrangements can be established which will permit the mobilization of an international force with greater efficiency.

From the beginning to the end it will be apparent that military considerations are less significant than political considerations. We have reached the point in human history when the settlement of major disputes among great powers by military means is unthinkable and the settlement of lesser disputes by military means highly dangerous. One writer has referred to the late Dag Hammarskjöld as "the custodian of the brushfire peace".³ This apt phrase might be taken as setting the terms of reference for most of the operations in which an international police force—or fire brigade—will be employed. If we push the metaphor farther, the essential political task is the task of the forester or the gardener: to encourage the growth of healthy vegetation that will be fire-resistant.

What emerges in the course of this study is that the problem of keeping the peace today calls for the closest possible liaison and co-ordination between effective political techniques involving negotiation, mediation and conciliation and highly efficient quasi-police or quasi-military techniques that will prevent a local dispute leading to wider and more dangerous involvement.

² Burns wrote: "I objected to the use of the term 'paramilitary' to describe UNEF and its functions. The *Oxford English Dictionary* defines 'paramilitary' as 'having the status or function ancillary to that of military forces'. Examples are constabularies or gendarmeries organized more or less on military lines and having functions of maintaining order in turbulent areas, with a regular army force behind them. But UNEF was and is unquestionably formed of military units, from the regular forces of the nations contributing. It is not ancillary to any other military force." *Between Arab and Israeli*, p313n

³ Joseph P. Lash: *Dag Hammarskjöld, Custodian of the Brushfire Peace*

I

WORLD SECURITY AND NATIONAL DEFENCE

"The Purposes of the United Nations are to maintain international peace and security..."

Article 1, United Nations Charter.

It has been the pride of those who drafted the Covenant of the League of Nations that they had provided the working drawings for an almost automatic system of collective security. Unfortunately, the solemn commitments in the Covenant found no expression in the foreign policies of member states. Some lay the blame on the fact that the League system lacked universality, that the absence of the United States, the Soviet Union and Germany from its original membership drove member and non-member states to seek security in traditional methods of armament and alliance. But others suggest that there was little to indicate that the great-power leaders ever contemplated any radical changes in the national policies of their governments. The efficacy of the collective system as formulated by the League was never put to the test.

With greater realism, the founders of the United Nations made no attempt to reconstitute the general system of collective security on which the original hopes of the League had been based. Collective measures against an aggressor were no longer called for automatically. The Security Council, which was assigned primary responsibility for the maintenance of international peace and security was to "determine the existence of a threat to the peace, breach of the peace, or act of aggression". The Council was also to decide what measures should be taken to maintain or restore international peace and security. But the Council could only act if the great powers on the Council—who occupied the five permanent seats—were agreed that a situation existed that called for action and were also agreed on the course of action that should be taken. It followed that no action would be taken in a situation in which the interests of one or more of the great powers was involved. To put it bluntly, the United Nations could not act to stop a great-power war or to restrain a great-power aggression.

But if the Charter was more realistic in recognizing the sovereign prerogatives of the great powers it was also more specific than the Covenant of the League in formulating plans for collective action on the assumption of great-power unanimity. The procedures for assembling an international force are set forth in considerable detail:

- (1) All Members of the United Nations, in order to contribute to the maintenance of international peace and security, undertake to make available to the Security Council, on its call and in accordance with a special agreement or agreements, armed forces, assistance and facilities, including rights of passage, necessary for the purposes of maintaining international peace and security.
- (2) Such agreement or agreements shall govern the numbers and types of forces, their degree of readiness and general location, and the nature of the facilities and assistance to be provided.
- (3) The agreement or agreements shall be negotiated as soon as possible on the initiative of the Security Council and Members or between the Security Council and groups of Members and shall be subject to ratification by the signatory states in accordance with their respective constitutional processes.⁴

These agreements under which certain units would be set aside for service in an international force were to be negotiated with the assistance of a Military

⁴ Article 43 United Nations Charter

Staff Committee composed of the Chiefs of Staff of the five permanent members of the Council or their deputies. The broad purposes of the Military Staff Committee were described as "to advise and assist the Security Council on all matters relating to the Security Council's military requirements for the maintenance of international peace and security, the employment and command of forces placed at its disposal, the regulation of armaments and possible disarmament." It was further specified that the Military Staff Committee "shall be responsible under the Security Council for the strategic direction of any armed forces placed at the disposal of the Security Council."⁵

It will be seen that the requirements of great-power unity which governed any decision of the Security Council applied with even greater force to the decisions of the Military Staff Committee on the organization and strategic direction of an international force. The MSC met intermittently for two years from 1946 to 1948 but discovered that it could reach no agreement on the essential objectives, size and composition of the force. The specific arrangements prescribed under the Charter for the maintenance of international peace and security were never put into effect. Article 43 remained a dead letter.

UN Action in Korea

In June 1950, the armies of North Korea drove across the 38th parallel into the territory of South Korea. Here clearly was a breach of the peace and an act of aggression calling for collective measures under the Charter. The Security Council went into immediate session, called for a cease-fire, demanded the withdrawal of North Korean armies to the 38th parallel and called for assistance from Member states in implementation of the resolution. Fifty-one states expressed their support of the Council's stand, sixteen provided combat units to serve under the United Nations Command.

But while the action in Korea demonstrated a strong consensus behind collective action to meet aggression, the measures which were taken and the procedures adopted were hardly those called for under the Charter. In the first place, the Council decision was taken during the absence of the Soviet delegate—who was boycotting the Council in protest against the non-recognition of Communist China. In the second place, the UN force was not organized under the conditions called for in Articles 43-47 of the Charter. The Military Staff Committee was naturally never in the picture. In the third place, the conduct of the operation was not under the authority of the Security Council but under the authority of the Government of the United States. Even if the command was designated "United Nations Command" and the blue flag of the United Nations was raised, the troops from Member nations were used in support of what was essentially a United States military operation. Later, both the Council and the General Assembly took action of a political character and it is probable that the pressure of United Nations members influenced the decision not to carry military action beyond the Yalu River and eventually to settle on the 38th parallel as the final armistice line.

Peace-keeping and the General Assembly

The Charter gave prime responsibility to the Security Council for questions involving international peace and security. But the San Francisco Conference, under strong pressure from middle and small powers, had brought about the modification of the original Dumbarton Oaks draft so as to raise the prestige and the authority of the General Assembly. A new Article 10 empowered the Assembly "to discuss any questions or any matters within the scope of the present Charter." Australia's Secretary of State for External Affairs who had played a leading part in the smallpower revolt commented: "Inclusion of this

⁵ Article 47 United Nations Charter

clause removes any shadow of doubt as to the general jurisdiction of the Assembly to discuss any matter of international concern, whether relating to security or welfare or whether particular or general in character."⁶

The extraordinary circumstances under which the Security Council had taken a decision on the North Korean invasion, namely the absence of the Soviet delegate, caused delegates to the General Assembly which met in the autumn of 1950 to give serious consideration to means of transferring responsibility to the Assembly for peacekeeping action should the Security Council be paralyzed by a veto. A United States resolution, which had the title *Uniting for Peace*, was passed which permitted the General Assembly to be summoned on 24-hours notice if the Council had been blocked on a crucial decision involving international peace and security.

The resolution worked out a procedure closely resembling the procedure for Security Council action under Chapter VII for the voluntary mobilization of an international force:

(The General Assembly) recommends to the States Members of the United Nations that each Member maintain within its national armed forces elements so trained, organized and equipped that they could promptly be made available in accordance with its constitutional processes, for service as a United Nations unit or units, upon recommendation by the Security Council of General Assembly, without prejudice to the use of such elements in the exercise of the right of individual or collective self-defense recognized under Article 51 of the Charter.

The resolution provided for a Peace Observation Commission to report on a situation in any area where international tension threatened peace and security. It called for the appointment by the Secretary-General of a panel of military experts to give technical advice to member states on request. And it provided for the setting up of a Collective Measures Committee of fourteen members to study and report on measures to be used collectively to maintain and strengthen international peace and security.

While there was a formal similarity between the provisions for the establishment of an international force under the *Uniting for Peace* resolution and the provisions of Chapter VII of the Charter the action called for was essentially different. In the first place General Assembly decisions are recommendations: Security Council decisions under Chapter VII are mandatory—with certain allowance for constitutional processes in member states. In the second place, military units under the Assembly resolution were *volunteered* by Member states: under Chapter VII member states "*undertook*" to make units available. The nature of General Assembly decisions made it extremely doubtful whether a force recruited under the *Uniting for Peace* resolution could be used in peace-enforcement actions. Moreover, in spite of freedom from the veto, it would be extremely unlikely that such a force would be used in a situation in which big-power interests were involved.

The immediate results of the *Uniting for Peace* resolution were slight. The Peace Observation group played a small part in the Balkan crisis in 1952. The Collective Measure Committee prepared some studies which were filed away. Only four countries answered the request to set aside forces for possible UN action: the United States was not among them. But the long-term effect of the resolution was very significant. The General Assembly was given a new sense of responsibility in keeping the peace—a responsibility set forth in the Charter but up until then overshadowed by the prior claims of the Security Council. The veto lost some of its ominous portent. And perhaps of greatest importance was the new procedure established which permitted the

⁶ Herbert Vere Evatt: *The United Nations*, The Holmes Lectures, p. 20.

overnight summoning of the General Assembly in a crisis which the Security Council had proved incapable of handling.⁷

The legal basis for the *Uniting for Peace* resolution has been the subject of considerable controversy. It was sharply challenged by the Soviet Union which refused at a later date to bear the expenses of any peace-keeping operation established under the authority of the Assembly, a position shared in some measure by France. One of the most convincing cases made out for the legality of the Assembly's role has been presented by the Norwegian jurist, Jens Evensen, in one of the papers prepared for the recent Oslo Conference on An International Peace Force.⁸ He argues that "according to the Charter, the General Assembly also has a clear responsibility to take effective steps to maintain peace in the world. It has not only the right but the duty to accomplish this mission." This position is also maintained by the International Court of Justice in its advisory opinion on the question of considering the costs of peace-keeping operations as "expenses of the Organization" to be allocated among member states by the General Assembly on the same basis as the regular budgetary expenses of administration.⁹

What seems to be fairly evident is that the Charter's provisions are sufficiently flexible not only to validate the assumption of greater responsibility by member nations in the General Assembly but also to encourage innovations in the procedures and techniques of peace-keeping. Because the specific procedures for collective measures could not be satisfactorily implemented does not mean that we are locked in a stalemate or plunged into international anarchy. The General Assembly was able to take over some of the authority from the muscle-bound Security Council. And, not on a grand world scale, but incident by incident, crisis by crisis, both Security Council and General Assembly have proved that they can devise methods for the settlement of disputes and the keeping of the peace. If the post-war world has found it difficult to live by the letter of the Charter, at least it is managing to work out in practice an impressive structure of common law.

II

INTERNATIONAL PEACEKEEPING OPERATIONS

I do not believe we are ever going into another United Nations operation of full-scale fighting like that in Korea. I do not see that as possible... The tasks we will be called upon to carry on will be like those used at Gaza and the operation in the Congo and so on.

General Charles Foulkes, CB, CBE, DSO, CD (Retired)
Before Special Committee on Defence,
October 22, 1963.

Professor Alistair Taylor of Queens University—who at one time served with the United Nations Good Offices Committee in Indonesia—draws an important distinction between *peace-enforcement* and *peace-supervision*.¹⁰ Peace-enforcement belongs with the concept of collective security: it represents military action or a military deterrent against a nation that breaks the

⁷ See William R. Frye, *A United Nations Peace Force* p. 57-65; also for a critical analysis of *Uniting for Peace* see Inis L. Claude, *The United Nations and the Use of Force*, International Conciliation No. 532.

⁸ Jens Evensen, Problems of International Law relating to the Establishment of UN Security Forces. Internasjonal Politikk Oslo, 1964 pp. 44-75.

⁹ Advisory Opinion in I.C.J. Reports 1962, p. 151 and following.

¹⁰ A. M. Taylor, *Canada's Military Role and Universalism*. An address to the R.C.A.F. Staff College, Toronto, February 4, 1964.

peace or threatens to break the peace. Peace-supervision is an instrument to assist in the maintenance of peace and in the settlement of disputes. In peace-enforcement, military considerations are uppermost; in peace-supervision, political, diplomatic and mediatorial activity will play the most important part.

The operations of international forces under the United Nations, with the exception of Korea—a very doubtful example of collective security measures—belong in the category of peace-supervision missions. While they have wide differences in their stated functions and in their composition they have certain features in common. They are associated with political and diplomatic efforts to settle disputes through enquiry, negotiations, good offices, mediation, conciliation or “preventive diplomacy.” The forces have been established and have taken up their positions with the consent of the parties concerned—and for the most part with the consensus of member states. They are forbidden to use military force except in self defense—or in rare cases to prevent civil war and violence. They are all committed not to interfere in the affairs of the country to which their mission has brought them.

UN peace-keeping operations may be divided into three general categories: (1) observer groups to supervise cease-fires and truce lines; (2) military forces to separate armies and later to patrol frontiers; and (3) military forces with a mandate to separate armies and assist in maintaining internal order. These categories are inexact. Every UN operation has its unique problems and its separate mandate which, however, may not exactly coincide with its field responsibilities. They will serve our purposes, however, in reviewing the various operations.

(1) *Observer Groups*

It may be noted that in most cases in which the United Nations sent in observer teams an internal situation was complicated by the intervention or threatened intervention of outside states.

Greece in December 1946 is the first example of active intervention by the United Nations in a situation that threatened international peace. A complaint from the Greek government charged Greece's northern neighbors—Albania, Bulgaria and Yugoslavia—with furnishing aid to Greek guerillas in rebellion against the government. The Security Council established a Special Commission of Enquiry and later the General Assembly appointed a Special Committee for the Balkans to investigate and attempt a settlement. An international group of military observers assisted the two bodies in their work.

Palestine came on the agenda of the United Nations in April 1947 when the British government declared they could no longer administer the Palestine Mandate. A Special Committee recommended partition into a Jewish and an Arab state, a proposal that was accepted by the Jewish representatives but turned down by representatives of the Arab states. Severe fighting between the two communities escalated into open warfare after the State of Israel was proclaimed in May 1948. To assist in enforcing a cease-fire and a truce a Truce Commission was established in April 1948 that consisted of the Belgian, French and United States consuls in Jerusalem assisted by military observers of their nationalities. Later the observer group was expanded to some 300 officers. In the early months of 1949 four armistice agreements were concluded between Israel and Egypt, Jordan, Syria and Lebanon. These were supervised by the Truce Commission now known as the United Nations Truce Supervision Organization assisted by four Mixed Armistice Commissions. Military observers reported incidents or infiltrations across Armistice Demarkation Lines.¹¹

¹¹ cf. Lt. Gen. E. L. M. Burns, *Between Arab and Israeli* for a most perceptive account of the UN's peace-keeping role in Palestine.

An international group of military observers assisted the three-man Good Offices Committee and the UN Commission for Indonesia between 1947 and 1949 to supervise cease-fires and truces between Dutch and Indonesian forces in the bitter days that preceded Independence.

The dispute between India and Pakistan over Jammu and Kashmir was brought to the Security Council by India in January 1948. The Council appointed a Special Commission to investigate, mediate, and attempt to arrange terms for a peaceful settlement. One year later a cease-fire was arranged and military observers dispatched to supervise the truce. Fifteen years after their appointment, the military observers are still in position. The basic differences are still unsettled but there has been no war.

When in 1958, civil war broke out in Lebanon, the government charged that the rebels were receiving aid from the U.A.R. whose Syrian frontier touched Lebanon. The Security Council was primarily concerned with possible international implications of more than local consequence since Lebanon under the Eisenhower Doctrine was promised aid from the United States if its territorial integrity was threatened. Later a group of American marine was landed at Beirut but played a passive role. The Council decided to send a three-man observers group (UNOGIL) assisted by military observers—which at peak strength totalled 600—to ensure that there was no infiltration of arms, personnel or material across the Syrian border. Lebanon was an interesting precedent “where elements of an external nature and elements of an internal nature have been mixed” for Dag Hammarskjöld’s later policy in the Congo.¹² UNOGIL had a calming effect when tension was at its height: later in the year an agreement was reached among all Arab States.

In West Iran, the presence of a small UN force made up entirely of troops from Pakistan had a good effect during the brief interregnum between Dutch and Indonesian jurisdiction when the territory was administered by the United Nations.

In contrast, the UN observer group in the Yemen that was sent in following the intervention of troops from the United Arab Republic and Saudi Arabia led to no very satisfactory results because of the failure of the invading forces to carry out their undertakings for disengagement.

(2) UNEF: A Military Force to Separate Armies and Patrol Frontiers

In the late autumn of 1956, the invasion of Egypt by Israeli forces and the combined British-French action that took the form of bomber attacks on Egyptian airfields and landings at Port Said presented the United Nations with the worst crisis it had experienced since the Korean War. Efforts by the Security Council to bring about a cease-fire were blocked by the negative votes of France and the United Kingdom, and the General Assembly was called into special emergency session under the terms of the *Uniting for Peace* resolution. On November 4, on a proposal by Canada’s chief delegate, Mr. L. B. Pearson, the Secretary-General was asked to explore the possibilities of establishing an international force to supervise the disengagement of the Israeli, French and British Forces. On November 7, the resolution authorizing the force and setting the terms of reference was passed. Three days later the advance party of Danish and Norwegian troops were putting down at the UNEF staging area at the Capodichino Air Base near Naples.

In assembling the Force, Mr. Hammarskjöld laid down two principles: (1) no troops would be contributed by the permanent members of the Security

¹² Memorandum of 12 August 1960 on Implementation of Security Council Resolution of 9 August 1960: UN Document S/4417/Add.6.

Council, and (2) no troops would be accepted from countries which by reason of their geographic position or other reasons had special interests in the region. By the time it had reached its operational strength of 6,000 men, UNEF included contingents from Brazil, Canada, Columbia, Denmark, Finland, India, Indonesia, Norway, Sweden and Yugoslavia. The Force Commander was Lt. Gen. E. L. M. Burns of Canada who had formerly served as Chief of Staff of the United Nations Truce Supervision Organization in Jerusalem.

UNEF was established with the full agreement of the four governments concerned—Egypt, France, Israel and the United Kingdom. It entered Egypt with the consent of the Egyptian government which later concluded an agreement with the United Nations setting forth the rights and privileges of the force. The troop withdrawals were arranged on the basis negotiations between the Secretary-General and the respective governments.

The conduct of the UNEF operation may be taken as a model of a successful international undertaking involving a military force. On November 15, 1956, the first blue-helmeted troops began to arrive at the Abu Suweir airfield near Ismailia, the mid-point on the Suez Canal. Within a few days a small group had interposed itself between the Egyptian and British-French troops near the northern end of the Canal and other units had moved into Port Said and Port Fuad for the purpose of easing tension in these occupied towns. UNEF extended its area of control as the British and French troops withdrew within narrowing perimeters until the last of them embarked on their ships on December 22. Meanwhile, other UNEF troops followed up the staged withdrawal of the Israeli forces eastward across the Sinai entering the Gaza strip on March 7.

Their original objective achieved, most of the UNEF units were used to man fixed positions along the Gaza Armistice Demarkation Line while mobile units of the Canadians and Yugoslavs patrolled the Egyptian-Israeli frontier from Rafah on the Mediterranean to the Gulf of Aqaba. A small UNEF unit remained at Sharm el Sheik at the tip of the Sinai peninsula to ensure freedom of access to the ports of Elaat and Aqaba. The UN Force has remained in position for the past seven years, national units being rotated to maintain the strength at about 5,000 men. The tranquillity of the region, normally endemic with feudal strife, is a testimony to the effectiveness of its presence.¹³

(3) ONUC: A Military Force to Separate Armies and Maintain Order

The United Nations Operation in the Congo—or ONUC, from the French designation—was originally modelled on UNEF. In both cases, an international force was charged with supervising the withdrawal of foreign troops. In both cases the force was recruited from small powers: in the case of ONUC, the core was composed of African units. In both cases, the force had no military objectives and was barred from using weapons except in self-defense. In both cases, the force came into being with the agreement of the parties to the dispute. In both cases, the force was forbidden to interfere in the internal affairs of the country.

But as the Congo operation developed, marked differences between the missions became apparent. UNEF operated in a desert, ONUC in a populated country. UNEF had few problems of internal order. ONUC had the task of attempting to preserve order in a vast country plagued with political conflicts,

¹³ The best short document on the Force and the nature of its mandate is the Report of the Secretary-General of October 9, 1958 (A/3943). General Burns has written the best account of the field operations in *Between Arab and Israeli*, mentioned above. Useful accounts of the role of the Secretary-General in relation to the Force are to be found in William R. Frye's *A United Nations Peace Force*, and Joseph P. Lash's *Dag Hammarskjöld, Custodian of the Brushfire Peace*.

tribal fighting, civil war and the undiscipline conduct of leaderless national security forces. ONUC encountered its most serious difficulties in a part of the country that was beyond the jurisdiction of the central government and under the control of a secessionist régime that resented ONUC's presence. The political frame of reference, which in UNEF's case remained solid and reliable, in the case of ONUC disintegrated—a breach developing between the Congo government and the United Nations when the Secretary-General held fast to the force's mandate and refused to commit it to an armed attack on the Katanga authorities. The breakdown of the Central government left no legal authority with which to deal; the Katanga régime defied the UN request to rid itself of foreign officers and advisers who were dictating its policy, interrupted its lines of communication and attacked its personnel; and at UN headquarters the consensus of states that had launched the operation broke apart along lines paralleling the lines of factional conflict within the Congo.

The problems of tactics, logistics and communications were infinitely greater in the Congo than they were in Egypt. A force of 20,000 was deployed over a territory as large as Western Europe in which almost all transport and communication facilities had broken down because of the flight of Belgian technicians at the time of the Congolese army mutiny. The organization of air transport was difficult because of the absence of airport controls and navigation aids, shortage of aircraft and maintenance facilities, and a diverse assortment of air- and ground-crew. The problem of logistics, serious enough under the circumstances, was greatly accentuated by the unavailability of stores and vehicles, the multiplicity of ration scales and the lack of trained logistics personnel. While a number of military and civilian staff had had previous experience in UN field operations, the operation suffered in its early stages from the haste with which the force had been put together and local commanders in widely scattered positions were left to their own resources.

In spite of these enormous difficulties, few of which had been encountered in the UNEF operation, the UN force in the Congo managed to fulfill its main tasks. The danger of wider international involvement was contained. A measure of internal order was preserved and the country saved from anarchy. Military officers and civilian officials acting as mediators assisted in the re-establishment of a legal government. Perhaps the greatest contribution of all was made by the Civilian Operations team which supervised the activities of hundreds of technical and professional experts who kept the public services running and prevented the collapse of economic life.¹⁴

III

IN A STATE OF READINESS

It is an entirely different matter if governments in a position and willing to do so, would maintain contributions in a state of readiness so as to be able to meet possible demands from the United Nations. And it is an entirely different matter for the Organization itself to have a state of preparedness with considerable flexibility and in the hands of a qualified staff which can quickly and smoothly adjust their plans to a new situation and assist the Secretary-General in the crucially im-

¹⁴ Descriptions of the UN Congo operation are to be found in *The UN in the Congo* by King Gordon and in *Peacekeeping by UN Forces* by Arthur Lee Burns and Nina Heathcote.

portant first stages of the execution of a decision by the main organs to set up a United Nations force, whatever its type or task.

Dag Hammarskjöld: Report to the General Assembly
August 31, 1960

The peace-keeping operations of the United Nations during the past seventeen years have revealed an increased awareness of the need to stabilize critical situations in an age of poised nuclear power. In fact, the menace of nuclear war has downgraded the doctrine of collective security which contains the threat of punitive action against an aggressor. In a thermo-nuclear age the term "punitive" has lost much of its meaning,

The international community has moved away from comprehensive schemes of peace-enforcement to *ad hoc measures* for peace-supervision, associated with intensive political and diplomatic efforts to bring an immediate end to violence and then, through mediation and negotiation, to work out a long-term settlement.

The improvisation in mobilizing international forces has had certain advantages. The force has been flexible, adapted to the task at hand, and usually mounted with incredible speed. But the haste and lack of preparation have also made for confusion and have reduced efficiency. Valuable experience gained in UN operations has been dispersed among thousands of officers and men of some 40 nations or filed away on dusty shelves rather than applied in some new undertaking. Ever since the establishment of UNEF in 1956 there has been growing insistence that member nations should devise permanent arrangements to put international peace-keeping efforts on a more effective basis.

As early as 1948, Secretary-General Trygve Lie had suggested the formation of a permanent UN Guard of from 1,000 to 5,000 men. Later, during the Korean War, he advanced a much more ambitious plan for a United Nations Legion which would be a military force with considerable striking power. Neither idea received much support. A permanent force-in-being seemed politically unfeasible and unreasonably costly.

In an article in *Foreign Affairs* in April 1957, Mr. L. B. Pearson, in the course of an analysis of the organization and role of UNEF, brought forward the idea on which most of the future discussion was to centre. In terms of procedure it was related to the plan in Chapter VII of the Charter and the revised plan in the *Uniting for Peace* resolution. But its essential meaning was much more closely tied in with the practical experience in peace-keeping shared by UN members that had culminated in UNEF. There were two essential points in the scheme: 1) each member nation should earmark units in its regular armed forces for service in future UN peace-keeping operations; and 2) there should be a small military advisory group attached to the office of the Secretary-General to develop and co-ordinate plans for the effective utilization of this standby force.

This plan has received serious discussion in journals dealing with international affairs. It has been raised repeatedly during debates in the United Nations. It has been examined in its administrative, technical and military aspects by professional soldiers. New interest in the idea was awakened during the UN Congo operation in the course of which the bad effects of improvisation and lack of advance planning were clearly revealed. The Prime Minister of Canada advanced the proposal with greater urgency at the 18th Session of the General Assembly in 1963 and subsequently the Canadian Secretary of State for External Affairs has referred to the proposal as one to which the Canadian government is seriously committed.

In fact, the plan has begun to take practical form. Six countries, Canada, Denmark, Finland, Netherlands, Norway and Sweden, have already earmarked

units from their armed forces for international service and the specially trained Canadian unit, the 22nd Regiment, is now serving in Cyprus. A recent conference in Oslo attended by unofficial but highly qualified representatives of these six nations discussed the more general application of plans for the organization of a standby force. What follows is based on a study of various proposals that have been advanced for a permanent standby force, on discussions with officers who have served in UN field operations, and on the author's own experience in UNEF and ONUC.

THE REQUIREMENTS OF A PERMANENT STANDBY FORCE

1. A Military Planning Staff

Any intelligent thinking on a permanent international force on a standby basis must begin with the consideration of a headquarters Military Planning Staff. Acknowledgment of this principle is to be seen in the Charter provisions for a Military Staff Committee, in the Panel of Military Experts called for in the *Uniting for Peace* resolution, and in Mr. Pearson's proposal in his *Foreign Affairs* article of April 1957. It is further acknowledged in quotation from the late Dag Hammarskjöld which heads this chapter.

The establishment of a Military Planning Staff would, in fact, be the institutionalization and expansion of the office of the Military Adviser to the Secretary-General that now exists. At the time of the UNEF operation, the Secretary-General appointed General Martola, a retired senior officer of the Finnish army, as his military adviser to assist him with the military problems arising out of the organization, maintenance and utilization of the Force. In the Congo operation, Major General Indarjit Rikhye of the Indian Army, who had been Chief of Staff and Deputy Commander of UNEF, was appointed to a similar position. More recently, General Rikhye has been transferred to a permanent post as Military Adviser to the Secretary-General and is assisted by three staff officers from Canada, Brazil and Norway. There has therefore been some development in the conception of the role of Military Adviser from one closely associated with the military problems of a force-in-being to one concerned with problems that are likely to arise in situations in which the United Nations may become involved. The Military Adviser was consulted on the military aspects of the observer group in Yemen, the Supervisory force in West Irian, and the force in Cyprus.

A headquarters Military Planning Staff would therefore be a natural expansion of the present office of Military Adviser. It would work in close relationship with the Secretary-General, advise him on the military implications and requirements arising from the decisions taken by the principal United Nations organs, and constitute the co-ordinating link between the United Nations and the standby units earmarked for service in an international force.

We have already emphasized the necessary close association between the mandate of any United Nations Force and the political goals that are sought. It follows that there must be complete rapport and understanding between those who are concerned with the political objectives embodied in a Security Council or General Assembly resolution and those who are planning the military measures aimed at supporting the attainment of those goals. Col. Bjorn Egge, a military officer who served with ONUC in the Congo, puts it this way: "The essential principle would be that military action only represents an auxiliary means for the achievement of a non-military goal: the establishment of peace and order as a basis for carrying out the normal activities of a local community. The security forces should be regarded as an integral part of UN

action, and not as an isolated phenomenon. The military command must, therefore, be integrated with the civilian authority, and the military elements of the staff must be carefully adapted to the primary goals of the mission so that civilian and military activities of the U.N. may be co-ordinated in the area of operations."¹⁵

While Col. Egge is primarily concerned with problems of a field staff, the principle he is discussing applies with equal force to the headquarters Military Planning Staff.

From this basic principle comes a specific corollary: the composition and functions of any U.N. force must be closely related to the role to which it is assigned. It would not be appropriate, for instance, to equip an observers group with bazookas or heavy arms. It might, however, be appropriate to assign them some helicopters as well as jeeps. But if a UN force was to carry out its mission in an area endemic with civil war or communal strife it might well require more formidable armour, particularly if it were given the task of preventing the spread of civil war or calming communal fighting. The decision taken by the Security Council on February 21, 1961 which authorized ONUC to use force if necessary to prevent civil war was not immediately reflected in changes in weapons and armour that the enlarged mandate might require—and in fact did require in September.

A headquarters Military Planning Staff is, therefore, a key factor in the development of earmarking units in the armed forces of member states for service with an international force. It is this that would mark off international forces in future operations from the improvised forces which have been put together in haste to meet a particular emergency.

2. National Earmarked Units

It may be assumed that an international force on a standby basis will take shape as a development out of practice which has already begun. The earmarked units in the armed forces of Canada, Denmark, Finland, Netherlands, Norway and Sweden are already being trained in tasks likely to be required in a future international assignment. A Bill to provide for the establishment of a standby force was introduced into the Swedish Parliament in March 1964. The Force would consist of some 1,600 men, the main part of which would comprise two battalions equipped for guard duty and the maintenance of order. In addition, there would be one technical unit equipped for the operation of communications and transport and an air transport unit with aircraft suitable for operation in a country with limited runways and airfield facilities. The standby force would also include personnel who could serve as staff officers and observers. The Bill also provides for the equipment of the force with small firearms and light supporting weapons and with the appropriate vehicles and communications equipment. The introduction to the bill referred to negotiations which had been carried on among the Defence Ministers of Denmark, Norway and Sweden through a joint work group on standby UN forces. They may be considered as pioneers in a new effort to relate national defense plans to the requirements of preserving international peace and security.

The earmarking of national units, however, without reference to the plans of a headquarters Military Planning Staff is not likely to lead to satisfactory results. The Military Planning Staff will be concerned with assembling a

¹⁵ Col. Bjorn Egge, "Regional Command of the UN Force", *Internasjonal Politikk*, Oslo, February 1964, p. 89

balanced force to meet an anticipated emergency. The two major UN operations—UNEF and ONUC—were at the beginning far from balanced; they were desperately short of ancillary and supporting units. Nasser's refusal to accept the Queen's Own Rifles, as Gen. Burns himself admitted, turned out to be a blessing in disguise and Canada's contribution of engineers, signal units, supply and ordnance, a maintenance workshop, military hospital, and reconnaissance and transport aircraft were indispensable for the widely deployed operation over the Sinai desert. Later, Canada's reconnaissance squadron of light-armoured vehicles, suitable for desert work, filled a needed role in patrolling the Egyptian-Israeli frontier.

Up until Cyprus—and excepting Korea—it has become an established principle that UN forces would be drawn from the middle and small powers. While politically justifiable this had its technical disadvantages since the UN forces were deprived of the highly-developed resources of the big powers, except in the case of external airlift. Most of the nations that have contributed to a UN force are able to offer infantry battalions: very few are able to supply transport, communications, internal air transportation, and trained administrative personnel. In planning a well-balanced force for an anticipated emergency, the Military Planning Staff may have to request a higher proportion of administrative and supporting services from the more technically developed nations. Ideally, a national contingent offered to an international force will be balanced within its self—or will achieve a balance through association with other national contingents as in the case of the Scandinavian countries. The airlifting of the Canadian Twenty-Second Battalion to Cyprus in Canadian Hercules transport aircraft, with heavy equipment and stores following by sea transport, is an admirable arrangement—but an arrangement that few states can duplicate. It is quite likely, therefore, that special calls will have to be made on certain nations to add to or modify the components of their volunteered units in the interest of achieving a better balance in the international force.

Military experts who have given consideration to the task of assembling a balanced force from earmarked units in national armed forces have stressed the necessity of having at headquarters detailed information on supplies, equipment and personnel. The following is the sort of information that would be called for:

- Detailed organization of unit
- Number of personnel
- Types of weapons
- Types of vehicles
- Load of ammunition
- Supply of all kinds of spares
- Preferable type of ration
- Size of national allowance
- Weight and cube of stores and equipment.
- Equipment for various types of terrain and climate
- Administrative and logistic capability included in the unit.

Every item in this inventory could be graphically footnoted by reference to some incident, serious or exasperating, tragic or comic, which in UN field operations arose from the lack of just specific information and the consequent lack of planning.

Quite apart from technical balance, the political composition of any force is important. The "mix" in UNEF was different from the "mix" in ONUC. The "mix" in Cyprus is different again. At present, the countries that are earmarking units for international service are all from Western Europe and North America—not a broad enough selection for the future missions that

may be required. But there are in all some forty nations that have contributed officers or contingents to UN peace-keeping operations. If the present voluntary base could be broadened to include most of these nations, not only would the requirements of geographical and political distribution be met but any future force could draw on a large reserve of trained personnel with valuable experience in international service.

3. *Training*

The kinds of duties required in a UN field operation are very different, in most cases, from those for which a soldier has been trained. The absence of military objectives, the role of strict neutrality, the ban on the use of arms except in self-defence all call for re-orientation in a soldier's attitude. It is a testimony to the character of the troops that have served with UNEF and UNOC, as well as on other UN missions, that there have been very few instances where self-restraint has broken down under severe provocation.

In many cases, the functions performed by an international force more closely resemble those of the police than the military. This is especially true in a country experiencing the breakdown of internal order or torn by civil war. Police training is usually not a part of military training but is essential for members of a standby force. Some have suggested that trained police would be more useful than a military force. In some situations this has proved true: the Nigerian police in Leopoldville contributed greatly to the restoration of order in that city and assisted in the training of Congolese police. But more often police duties will alternate with military duties and the UN soldier must have that military training that will equip him to act calmly and effectively in an emergency. The extra margin of military training and discipline is frequently the factor that prevents violence.

In the tasks of separating armies, supervising truce lines, or calming communal or tribal feuds, the UN soldier will frequently be called upon to exert his influence as mediator. This is different from the high-level mediation and conciliation conducted at UN headquarters or through the official Mediator. There are many cases in which an explosive situation has been brought under control through the coolness, good humour and common sense of a UN soldier. And this applies not only to high-ranking officers but to N.C.O.'s and enlisted men.

Training for UN service, therefore, is a special exercise. It should be carried out with some uniformity in all countries with standby troops, taking into account the special training that may be required for individual units. Instructors and lecturers can be drawn from veterans of UN service. An exchange of instructors among the contributing countries would be useful. Above all troops should be educated in the aims and purposes of the United Nations, in its relevant administrative procedures, in the significance of the UN's peace-keeping role.

It may seem too much to expect a soldier to make a quick transition from being a loyal member of a national army to being a member of an international force with loyalty to the international organization. It is, however, a significant fact that among all the problems faced by an internal force in the field the least have been those arising from differences or misunderstandings between soldiers of various national units. It may be that a soldier tends to be non-political. It may be that the training of a soldier produces a similar type of man, who can get along with other soldiers regardless of nationality, race or color. Often enough it seems that a soldier with a blue helmet faced with a peace-keeping job responds to the challenge of that role and finds common ground with others engaged in the same pursuit.

4. *Field Headquarters Staff*

Here is one of the most acute problems that has been faced by a UN force, hastily assembled to meet an emergency: the political requirements of speed usually outdistance the military necessities of adequate preparation and experienced direction. In some instances, the first components of a force have arrived in the area of operations before the commander and before even the nucleus of a field headquarters staff has arrived to brief the UN units on the special nature of their tasks.

A field headquarters staff should be international and broadly representative of the nations contributing units to the force. Too frequently, however, this political requirement has been met to the neglect of the more important requirement of choosing officers with specialized staff experience. The elementary task of translating a political resolution of the Security Council or General Assembly into clear directives for a field operation has sometimes been delayed or neglected simply because the few qualified officers in the "pick-up" team have been too overburdened with minute-to-minute chores to devote time to mapping out an over-all schedule of duties and responsibilities.

Preparations and planning for a standby force on a permanent basis must include careful planning of the composition of a field staff which at the outset can assume responsibility for the direction of the force as a whole.

The qualifications of the commander must be related to the defined tasks of the force and to the special problems that may be encountered in the course of the development of the operation. Except possibly in a situation where the tasks of the force are restricted to observers' duties, the commander should be a senior officer who has had command experience in active service. While normally the work of the force will entail no recourse to arms, the force must nevertheless be prepared to assume a military posture should a breakdown of law and order require firm action. A senior officer who has commanded troops in wartime is likely to anticipate a worsening situation and through his contingent commanders prepare for any emergencies that may arise. A UN commander must be a good manager: with the best of preparations a UN force is bound to encounter more complex problems than a national force. The commander must be qualified to plan, organize, co-ordinate and control. Above all a UN force commander must be a man who from previous experience and inner-conviction fully comprehends and is identified with the United Nation's approach to the problems of peace-keeping.

Previous experience with a UN operation is also an invaluable asset for an officer who is selected to serve on a UN Field Headquarters Staff. The most careful preparations and planning may lessen but will not entirely overcome the special difficulties of welding together a grouping of national components into a single integrated and efficient force. Logistics problems are accentuated by a wide variety of ration scales, vehicles, equipment, weapons and supplies. Transport and maintenance invariably pose more acute problems than in a national force of the same size. Movement control raises incredible difficulties. And above all, the combined military-civilian character of the operation, both in direction and servicing, is apt to be a source of bafflement and frustration for any who have not had previous experience of a similar operation at the administrative level. An urgent necessity for the Military Planning Staff is to prepare a roster of qualified staff personnel from the nations which up to now have supplied contingents and officers for international service.

Ideally, it would be most satisfactory to have a field staff in a state of semi-readiness which could be immediately activated when a decision was taken to send a force into a troubled area. But there are obvious difficulties in the way. In the first place, political considerations will in every case have some bearing on the components of the force and consequently on the composi-

tion of the staff. In the second place it might be difficult to assure that any particular officer could at short notice be released from responsibilities in his national service. There is, however, nothing to prevent staffing tables being drawn up, with alternates for each position, so that the difficulties heretofore encountered would be overcome at the very outset of an operation.

Since all UN field operations are under joint civilian-military administration, it is equally important that the civilian component be thoroughly qualified for its particular task. By now a vast body of experience has been gained and the United Nations Secretariat should be able to supply their most qualified administrators to carry their share of the joint staff load. What is chiefly required is improvement in the liaison and integrated co-ordination between military and civilian components. Here it would be useful to arrange prior consultations and seminars that bring together staff officers and civilians who have been tentatively assigned to future UN missions. A manual of established procedures, particularly relating to logistics and procurement, would be very useful both for military and civilians charged with responsibility in field administration.

5. Global Transport Section

The planning of air transport must be given priority in estimating the needs of any future United Nations force. The small and middle powers which normally may be counted on to contribute contingents to the force are usually lacking in adequate long-distance transport facilities. In the two previous major operations, UNEF and UNCO, most of the external airlift was provided by the U.S. Air Force, with supplemental assistance in a considerable amount from Canada, and in the case of the Congo, to a minor extent from the U.S.S.R.

While it is likely that the United States will continue to be willing to provide the aircraft for long-distance lifting of troops and supplies, there are political reasons why there should not be sole dependence on the major power of the West. It is, therefore, desirable that the headquarters Military Planning Staff should include a Global Transport Section which could prepare plans in advance for the transport by air—or by surface, where conditions permit—of the components of the prospective force from their home bases to the theatre of operations.

In terms of ready availability, there will be primary dependence on the great powers and Canada. Canada is one of the countries which might be called upon to provide an even greater contribution towards an external airlift than on previous occasions. It should also be possible to count on some assistance from commercial carriers. In the beginning on the UNEF operations, aircraft of SWISSAIR were used to lift troops from the staging area of Capodichino Airport to the Abu Suweir Base in Egypt.

Admittedly it will be more difficult to earmark air transport than ground units for a prospective UN force. But through consultations and negotiations some advance provision can be made for airlifting designated units into specified areas of operation. The degree of improvisation can be cut down and time, expense and confusion reduced to the minimum.

The problem of internal air transport is always likely to be an acute one. The normal integration between air and ground forces which characterizes national armies cannot be developed to the same extent in a UN operation where national contingents may not be greater than battalion strength. Advance planning, however, can reduce many of the problems which have been previously encountered, for example in the Congo operation.

In the Congo, the airport and navigational facilities, which had been highly developed by the Belgians prior to Independence, were suddenly de-activated following the army mutinies when most of the Belgian operators and technicians

left the country. An emergency program under the direction of a team from the International Civil Aviation Organization (ICAO) put a number of the key provincial airports back into operation. The UN Air Transport Command faced incredible difficulties owing to the lack of military aircraft, the diverse assortment of aircraft and aircrew contributed by the supporting countries, and the lack of adequate maintenance facilities and parts. The core of military aircraft had to be supplemented at considerable expense by commercial chartered aircraft. While these latter discharged their functions as efficiently as the unusual circumstances permitted, they were rendered inactive during the period of military action in Katanga when supplies and re-inforcements were urgently needed.

The problem of internal air transport must be taken into account, therefore, in any advance planning which aims at a balanced force. The size and composition of the airforce must be related to the size and composition of the ground forces and to the objectives of the operation. An assorted collection of aircraft and aircrew from a number of countries, lacking proper maintenance personnel and facilities, invites trouble. The same number of aircraft and aircrew contributed by a few countries, each contingent self-contained in its maintenance personnel and maintenance facilities, is infinitely more efficient. The policy being adopted by the Scandinavian countries—paralleling that already put into effect in regard to their ground forces—of providing a composite but fully integrated airforce unit might well be taken as a model for other groups of countries employing similar types of aircraft.

6. Logistics

Inevitably, the logistics problem is one that will always prove a headache for an international force. The standardization and rationalization that has been followed in the larger military coalitions is much more difficult in an international force.

The sources of the difficulties that have already been experienced include: multiplicity of ration scales, types of equipment, stores and weapons of the national contingents; lack of knowledge concerning the actual supplies and equipment accompanying each unit; unsatisfactory transport arrangements; the lack of trained logistics staff officers; the joint civilian-military control of requisition, procurement and distribution.

Two proposals, pointing in opposite directions, have been discussed. The first would call for a central stores depot which could be drawn on to meet the needs of any operation. This would at once make possible greater standardization and increase the ease of speedy integration in an international force. The difficulties it raises, however, are probably greater than the difficulties it solves. It would be costly and it is most unlikely that member nations would be willing to underwrite the initial expense. The location of the depot would be a problem. Lack of knowledge of the possible theatre of operations and the size, functions and composition of the prospective force would raise a multitude of unanswerable questions. However, some serious study could be given to the standardization of certain equipment—vehicles for instance—and advance arrangements might be made for drawing on existing army stores or other sources of procurement.

The other suggestion is that contingents should come fully equipped and self-sufficient within themselves, prepared to take care of their own logistics problems. A central logistics bureau would have only the responsibility of providing storage and transportation facilities within the area of operations. However, such a scheme would also raise many practical difficulties. Uniform standards between national units would be difficult to maintain. The smaller units could not operate economically on a self-sufficient basis and would have to be assisted by a central procurement service. Accounting procedures would present

serious problems if the United Nations—as at present in most operations—were responsible for the field costs. And instead of moving towards standardization, the system would lead to the greatest possible diversification—with resulting difficulties in replacement parts and maintenance.

There is, therefore, much to be said for the present systems of mixed civilian-military central control. The UN Office of Field Operations is responsible for all major procurement and works in close co-operation with the field headquarters military logistics branch—with the ordnance and supply sections—which in turn keeps in close touch with contingents' needs.

Many of the present problems would be eased through the proposals that have already been advanced. The inventories called for from the contributing countries would provide the basis for estimating supplementary requirements. In UNEF and ONUC, basic ration scales were simplified and reduced to three or four—with "culinary adjuncts" taking care of national tastes. Provision for improved external and internal transport would better the system of distribution. Selection of specialized personnel for field headquarters staff would improve administration. And the establishment of standard logistic procedures with advance consultation between military and civilian administrative personnel would cut down on confusion and promote efficiency.

7. Standard Orders and Operating Procedures

An important function of the headquarters Military Training Staff would be to draw up a Manual of Standard Orders and Operating Procedures for an international force. These would be based closely on those governing military practice in the countries contributing contingents. A beginning has already been made in the present office of the Military Adviser.

A breakdown in communication is a primary cause of problem in the smooth functioning of an operation or the prompt execution of commands. A Standard Manual would provide a solid framework of communication within which all units could operate. There would still be certain language problems to overcome although experience in UN forces has proved that English and French are normally adequate for headquarters and inter-contingent communication. There is, however, the not unexceptional case of the Air Command in Leopoldville which sent a message to the UN Air Officer in Stanleyville. The message went through the Canadian Signals Squadron to the English-speaking Ethiopian at the transmitter who translated it into Amharic, passed it in Morse to the station in Stanleyville, where a French-speaking Ethiopian translated it into French and delivered it to the Norwegian Air Officer who was fluent in French and English. Some of the nuances in the original message were lost!

8. Staff Training Centre

We have already discussed the training of national units earmarked for international service. Of perhaps greater importance is the training of staff officers for Field Headquarters Staffs and for the headquarters Military Planning Staff.

Some of this training can be given at national Staff Colleges where parts of the curriculum could be geared to the requirements for service in an international force. But what would be of vital importance would be a Staff Training Centre, preferably at UN headquarters—an international equivalent of the Imperial Defense College—to provide a staff course at senior level. Most of those attending the staff course would have had previous UN field experience. The Staff Training Centre would be open to both civilians and military. It would provide opportunity for a close study of problems we have touched on in this survey—political aspects of UN peace-keeping operations, the special

tasks of a UN force, an integrated logistics program, problems of external and internal air transport, problems of command and inter-contingent relations. Those attending courses at the Centre would have access to senior United Nations officials dealing with political problems as well as to those dealing with administrative and procurement questions. For the first time, such a centre would provide an opportunity for working out the basic problems of an integrated force, serving an international purpose, and specially trained for international assignments.

IV.

The Feasibility of a Standby Force

Yes. In the sort of world in which we are living today I think we have to co-operate with like-minded nations in heading off or preventing the outbreak of a major thermo-nuclear war.
Lieutenant-General Guy Simonds Before Special Committee
on Defence, October 17, 1963.

From a technical point of view, there are no serious obstacles in the way of an international force on a standby basis. In fact, there is everything to be said for taking measures that would institutionalize and render more effective some of the practices that have developed during the co-operative experiences in peace-keeping in which Canada, along with a number of other nations, have participated in the course of the past seventeen years.

The problems that are likely to be faced are political problems. There is the plain fact that up to now efforts at establishing a permanent force have been unsuccessful. Some of the grounds for objection have been related to the very nature of the collective security system which was outlined in the Charter of the United Nations. We have noted that there has been a movement away from some of these original concepts on which the Charter was based. Some of the objections have been directed against the idea of a permanent force-in-being, a concept that has not been seriously advocated as an immediate possibility for some time and which differs essentially from the standby arrangements that we have been considering. The standby proposals under the *Uniting for Peace* resolution were advanced against the background of the Korean War and long before the United Nations had had the experience of a new kind of peace-keeping operation as exemplified in UNEF and ONUC. The question then is whether on the basis of practical experience and in a more favorable international climate political support could be found for permanent arrangements for a standby force.

There are several reasons for believing that today there is a greater chance of favorable response to such suggestions. The nuclear stalemate as well as the awesome potential of nuclear war have directed attention to the increasing need to deal effectively with local disturbances which hold the danger of escalating into major conflicts. The effectiveness of UN quasi-military operations to contain local brushfire wars has won substantial support to the idea of an international force, a fact demonstrated to the extent of voluntary contributions to the UN forces in the Middle East and the Congo. The present developments in earmarking units in national armed forces for international service and the modest extension of the office of the UN Military Adviser suggest significant trends in thinking. Plans for an international force on a standby basis involve no essentially new principle and follow directly from the activities which have had the support of the majority of nations

members of the United Nations. Admittedly, there is resistance on the part of certain nations to any departures from or advances beyond the specific requirements of the UN Charter. But even this resistance has not prevented action in particular emergency situations. There is, therefore, some ground for hoping that advocacy of permanent arrangements for a standby force would receive considerable support.

Possibly more serious objections would arise from the financial implications of such arrangements. Stated bluntly, the argument would be posed: is it worthwhile planning for future UN forces when the United Nations has reached the verge of bankruptcy as the result of its last two major operations?

The financial question is a serious one. But it has to be faced regardless of whether it is determined to carry out advance arrangements to meet future crises. The additional expenses that would be entailed in such plans as have been outlined would be insignificant. The earmarked forces would remain in the national armed forces of member nations and the costs of establishing a Military Planning Staff and a Staff Training Centre would not be large. It has been demonstrated that if an emergency is serious enough some form of international action is likely to be taken. And if the costs of such undertakings, which are minute in comparison with national defense expenditure, are considered as a block to needed peace-keeping operations, then international peace and security is indeed resting on a very flimsy foundation.

The argument can well be made on the other side. The advance planning and preparations which have been suggested would result in a saving in costs since much of the extravagance in past operations has been a direct result of the improvisation necessary to get a force quickly into the field and maintain it there. It may even be stated that the solution of the United Nations present financial crisis must be related to responsible and intelligent provision for the future United Nations operations that are bound to come. Planning for personnel, equipment, logistics and the training and mobilization of an effective force are part of the same process. The solution will be reached when it is realized that planning for the maintenance of international peace and security is part of the defense policy of all nations.

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A COMPARISON OF DEFENCE EXPENDITURES IN CANADA AND CERTAIN OTHER COUNTRIES

By: DEPARTMENT OF NATIONAL DEFENCE

Preface

1. In seeking statistics for a comparison of this nature, a number of problems are encountered, ranging from simple non-availability to much more complicated questions concerning composition of published figures and the methods by which they were calculated. Even when figures are willingly provided to such international organizations as the UN or NATO, their exactitude for comparative purposes may be tempered by many considerations or by simple problems of inexperience in some of the less developed nations. When they are not provided at all, as in the case of the east European nations, the difficulties are inevitably much greater. A slightly more detailed discussion of some of these problems is included in the paper. Suffice it to emphasize here that, while these figures are useful guides to orders of magnitude, they are definitely not susceptible to exact comparisons between one country and another.

Introduction

2. The selection of countries in this comparison has not been entirely arbitrary. Useful purposes are served by setting the Canadian figures in the context of our allies in NATO. Similarly, there is interest in the comparison of Canadian figures with the remainder of the major countries in the Commonwealth. The countries which are the chief motivation of a continued high level of defence expenditure in Canada, are the USSR and the European Satellites. Among these nations, Bulgaria, Roumania and Albania were not considered because of the much more primitive nature of their economies vis-a-vis the more industrialized northern Satellites, Poland, East Germany and Czechoslovakia. Finally, Sweden and Switzerland, as the undoubted leaders of the economically mature neutrals and Mexico, as the other neighbour of the United States, were included.

3. In order to give a year by year comparison over a period of the last decade, so many statistical difficulties are evoked that the result is not profitable. The latest year for which information is available for most of the selected countries is 1962. For comparative purposes, the earlier year of 1953 was chosen largely because at this time the budgets of many countries were close to a peak, following the Korean war, and in the "West" at any rate, have shown a more or less steadily declining trend since that time.

4. The total defence expenditures of the nations included in the attached tables reflect, evidently, different levels of wealth and population, and corresponding differences in military capacity and ambition. These countries may usefully be considered in four groups, between which there are significant breaks in military expenditure levels. First, of course, are the two "superpowers", the USA, and the USSR, whose defence expenditures in 1962 were 52 and 26 billion dollars respectively. Measured in American dollars (and ignoring for the moment the problems of exchange rates) this level of American expenditure was indeed twice as high as that of the Soviet Union but both outlays are so much larger than all other countries that they constitute a group—a unique group of continental powers wielding a comprehensive armory of strategic

weapons, and peacetime military establishments numbered in millions (only the People's Republic of China can match these two in point of numbers, and, of course, that country has not a comparable level of equipment). By comparison, the important European nations, which constitute our second group, spend between 4-5 billion American dollars on defence, a level only one-fifth to one-tenth as high as the two great powers. This difference is greater than the contrast in wealth and population, and reflects differences in military policy, as well as relative capacity to sustain expenditures. The three countries included are the United Kingdom, France and the Federal Republic of Germany. Of these three, the first two have limited strategic and atomic weapons, and sustain some military responsibilities outside strictly domestic defence requirements. Of course, all three are important NATO members and have concomitant responsibilities. But none of them sustains or could sustain a world-wide military capacity of the comprehensive nature of the two great powers. The third group of powers is more heterogeneous. We may consider it as being constituted by those countries who expend less than half the amount on defence as the three European powers, but a minimum of 500 million American dollars. Canada falls into this group. It also includes Italy, the Netherlands, Poland, Czechoslovakia, India, Sweden and Australia. These countries have a limited modern military capacity—in most cases devoted primarily to purely local defence requirements—and sometimes sustained completely outside military alliances (Sweden and India are the outstanding examples). The other countries in the group, however, do participate, in a limited way, in military alliances, and make contributions to regional as well as local defence. Finally, there are a great many countries whose defence expenditures scarcely exceed, or even fall short of, the requirements of internal security, and whose total outlays amount to a few hundred million dollars or less. Some of these countries maintain a small but efficient force (Switzerland and New Zealand) whose modesty merely reflects a very small population. Mexico's low level of expenditures, on the other hand, may be taken as a sensible reaction to a relatively low per capita income and the presence of powerful neighbours.

5. The use of total expenditures as an index to compare the relative size of military establishments, is however, subject to fairly serious modifications. Difference in relative costs of manpower and equipment are not adequately reflected by official exchange rates. A particularly important instance is the relatively low *financial* cost of manpower and equipment in the Soviet Union by comparison with the United States, a difference which considerably modifies the impression given by comparing the two countries' outlays measured in American dollars. Some countries make effective use of conscription and reserve training systems, enabling them to devote a relatively high proportion of total outlay to equipment (Sweden and Switzerland). Again, a low level of per capita national income enables a country to maintain a commensurately low pay level and a relatively high number of men in uniform (given the level of defence expenditures). Mexico is an example. In addition, except for the NATO nations who have agreed upon a common definition, there are considerable differences in the definition of military expenditures, and the content of the category may be more or less comprehensive. It is probable that the total defence expenditures of the Soviet Union (as defined by American budgetary categories) are considerably larger than the sums reported under that head by the Soviet Government.

6. It is notable that the relative burden of defence expenditures (as a proportion of GNP) declines *pari passu* with total expenditures, in most cases. In 1962, the two great powers expended about 10% of their total resources on defence, the major European powers 5-5.6% and the middle group of

powers 3-5%. (Portugal, with defence expenditures reflecting costly military operations abroad, spent nearly 8% of its GNP, and India, though falling into the middle powers group in point of total expenditure, spent only 2.2% of its GNP on defence, reflecting the exigencies of extreme poverty. Such particular circumstances do not alter the general point of this paragraph.) In general the smaller nations are altogether excluded by technical problems of scale from certain kinds of expenditure. Evidently, most modern strategic weapons, even in minimum quantities, exceed the total resources available for defence expenditure in all countries except the great powers. Even the relatively modest programmes of the European NATO countries impose difficult choices on the military budgets of those countries. Thus, the progressive limitation on the kinds of military tasks which smaller countries can undertake tends to reduce the relative as well as the absolute level of military expenditures of these nations, whether in terms of proportion of GNP or total outlays per head.

7. The development of total expenditures since the end of the Korean War (in current dollars) for nearly all the countries concerned has increased substantially, though the burden of defence (again, considered in proportion to total income) has declined. The most dramatic increase in expenditure by a major power has been made by Western Germany (an increase from \$1.5 billion dollars in 1953, in the first stages of rearmament, to \$4.3 billion in 1962). Even in this case, however, thanks of course to a very rapid expansion of the economy, defence expenditures as a proportion of GNP have declined. Portugal's rapid expansion of expenditures, outpacing the growth of the economy, is unique in NATO, though of course, its absolute extent remains small. Among the Commonwealth and non-aligned countries, only India's outlays have similarly increased in relation to GNP. The absolute as well as relative decline of dollar expenditures in Canada is the only case among the countries considered, whether in NATO, Commonwealth or non-aligned countries. In respect to the effect on the military establishment again, the rate of growth or decline of dollar expenditures is an imperfect measure. The various countries have experienced different rates of inflation, and several countries have revalued or devalued their currencies with respect to the American dollar. France, Italy and the UK are important countries in NATO whose total increase in defence expenditures since 1953 is seriously overstated as a result of inflation. Among important Commonwealth and non-aligned countries, Australia and Sweden have experienced inflation to a significant extent. Of course, scarcely any country, including Canada, has entirely escaped a measure of inflation over the last decade, and the proportion of GNP expended on defence is seldom seriously affected by the progress of inflation.

TABLE II
COMMONWEALTH AND OTHER COUNTRIES
(Ranked by % GNP Expended on Defence in 1962)

Country	Population		Gross National Product				Defence Expenditures			
	(millions) (mid-year)		Total (bil. current US dollars)		Per caput US dollars		Total (bil. current US dollars)		As percent of GNP	
	1953	1962	1953	1962	1953	1962	1953	1962	1953	1962
Britain.....	50.2	53.4	41.75	69.885	832	1,309	4.71	5.0784	11.3	7.3
CANADA.....	14.8	18.6	22.1	33.254	1,493	1,788	1.99	1.7154	9.0	5.2
Sweden.....	7.2	7.6	6.48	14.5	900	1,907	.400	.592	6.2	4.1
Pakistan.....	80.1	106.0	N.A.	7.0	N.A.	66	N.A.	.214	N.A.	3.1
Australia.....	8.8	10.7	10.04	16.1	1,141	1,504	.38	.476	3.8	3.0
Switzerland.....	4.9	5.6	5.78	10.6	1,180	1,892	N.A.	.259	N.A.	2.4
India.....	372.0	449.0	24.03	30.7	65	68	.438	.683	1.8	2.2
New Zealand.....	2.0	2.5	2.33	4.0	1,165	1,600	.078	.078	3.3	2.0
South Africa.....	13.1	16.5	4.77	8.3	364	503	N.A.	.1	N.A.	1.2
Mexico.....	28.1	37.2	4.7	14.2	167	382	.032	.101	6.2	.7

N.A. not available

TABLE III
USSR, SELECTED EASTERN EUROPEAN COUNTRIES AND CANADA⁽³⁾
(Ranked by % GNP Expended on Defence in 1962)

Country	Population		Gross National Product				Defence Expenditures					
	(millions) (mid-year)		Total (bil. current US dollars)		Per caput US dollars		Total (bil. current US dollars)		As percent of GNP		Per caput US dollars	
	1953	1962	1953	1962	1953	1962	1953	1962	1953	1962	1953	1962
USSR ⁽²⁾	187.9	221.5	114.5	255	609	1,150	11.5	13.4	N.A.	10.2 ⁽⁴⁾	N.A.	117 ⁽⁴⁾
CANADA.....	14.8	18.6	22.1	33.254	1,493	1,788	1.99	1,7154	9.0	5.2	135	92
Czechoslovakia.....	12.7	13.9	11.1	20	870	1,439	.418	.775	3.8	6.9	33	56
Poland.....	25.8	30.3	12.9	25	500	969	.439	.813	3.4	6.3	17	27
East Germany.....	18.3	17.2	12.5	26	683	1,420	N.A. ⁽¹⁾	.238	N.A.	1.9	N.A.	14

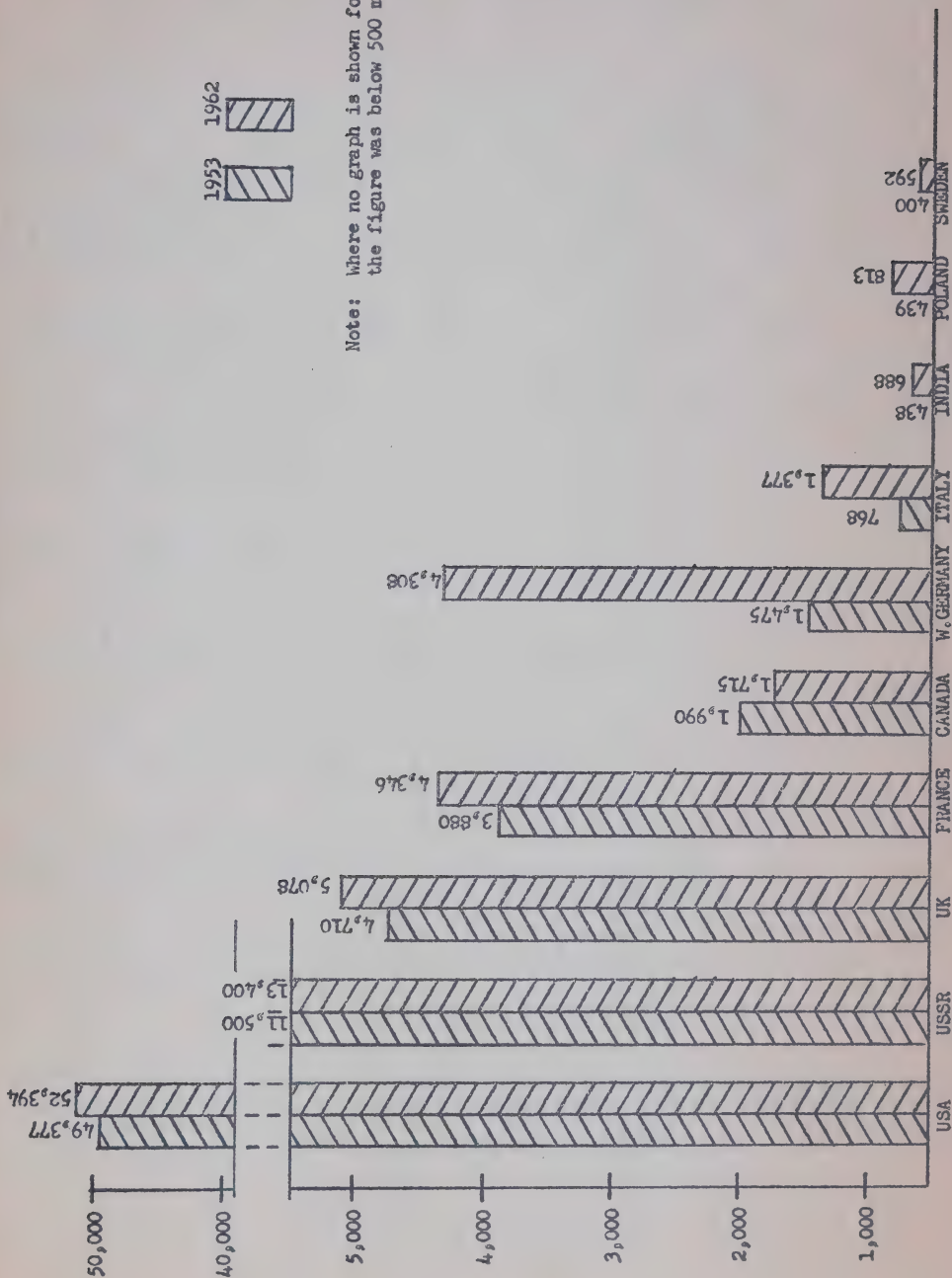
⁽¹⁾ For East Germany there are no official military expenditures before 1956.

⁽²⁾ USSR 1953 figures adjusted for the currency revaluation to make them comparable to the 1962 dollar values. USSR defence expenditures in total are estimated to be considerably higher than the budget appropriations recorded here.

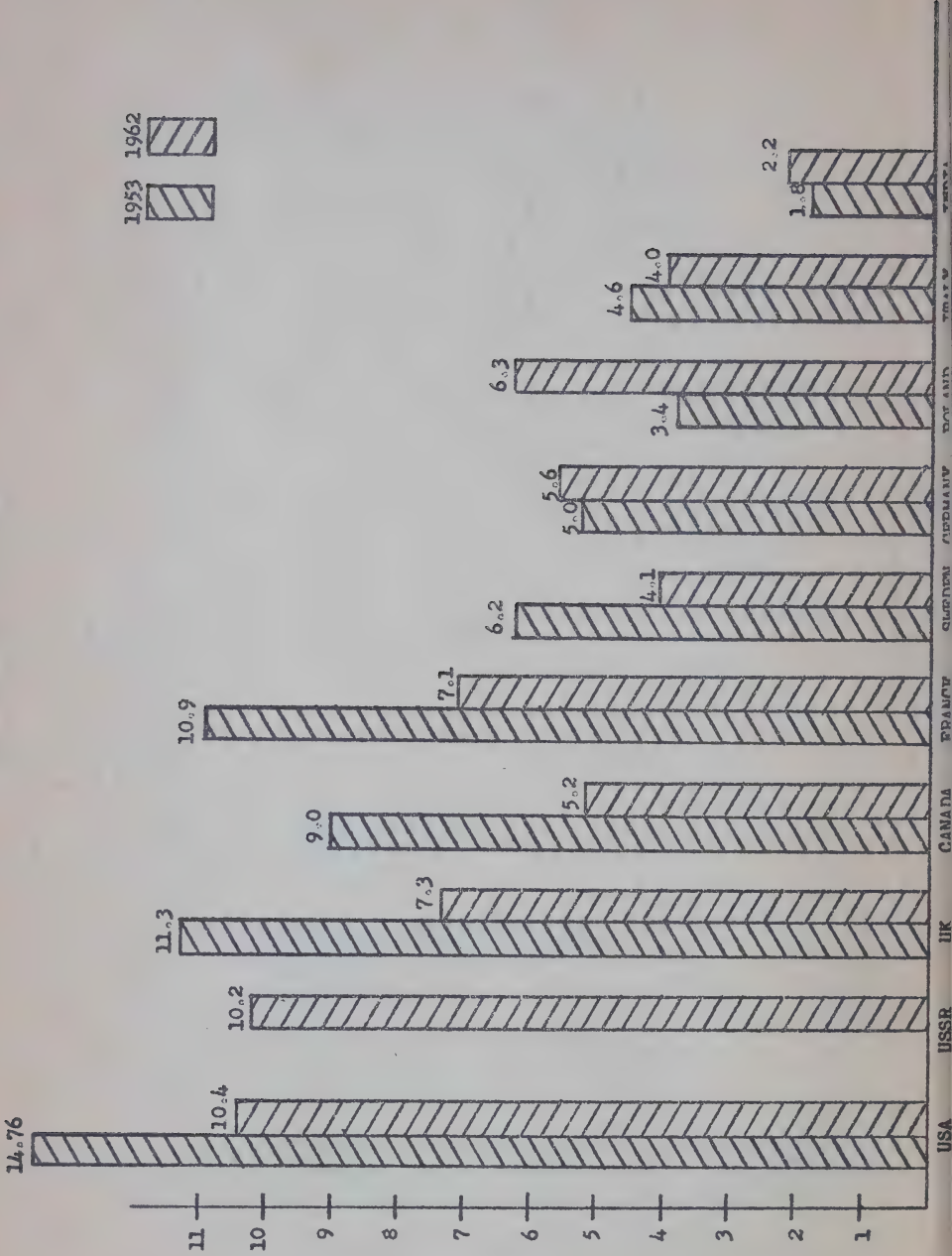
⁽³⁾ Gross national products of Eastern European countries are estimates and not official statistics.

⁽⁴⁾ Adjusted for expenditures excluded from budgetary appropriations.

Defence Expenditures of Selected Countries in 1953 and 1962, in millions of US dollars.



Defence Expenditures of Selected Countries
as a percentage of Gross National
Product, 1953 and 1962



DEFENCE EXPENDITURE AND ITS INFLUENCE ON THE CANADIAN ECONOMY

By: DEPARTMENT OF DEFENCE PRODUCTION, April, 1964

I Introduction

There are many conflicting views on the role played by defence spending in the Canadian economy. Much misunderstanding is caused by overstating one or more of the many influences of defence spending at the expense of others. For example, such spending has been variously described as: a beneficial stimulant; the prime mover of research; the major factor underlying industrial growth; the lifeblood of the economy; or even as an uneconomic and ruinous waste of irreplaceable resources. All of these things, and more are now or have at some time or other been true—in a relative, if not in an absolute sense.

To take the "wasteful" argument first, it must be admitted on social grounds that all defence spending is undesirable. But given the world as it is, and if we accept the basic premise that we must be prepared to take our part in defending ourselves against aggression and if, further, we adhere to the Canadian tradition of paying our own way, we must logically accept defence spending as a more or less regrettable necessity for the foreseeable future.

In considering the benefits of defence spending, while it is wrong to consider it as an essential element in economic activity without which we could not exist, there can be no doubt that, in our complex society, these expenditures have many ramifications which go far beyond the initial results of spending the defence budget. The effect of such spending on the economy as a whole cannot be overlooked, and decisions to vary the level, the direction and the timing of such expenditures are not to be taken lightly. For example, defence spending can, to cite but a few of its possibilities, provide an important stimulus to the level of business generally, or in a particular geographical region; reduce unemployment; maintain or advance technical competence, lead to important new inventions and improvements in the non-defence area; stimulate foreign trade, and increase capital investment.

The actual economic effect of defence spending will depend broadly on the general economic climate, the amount of defence money going into the economy, the direction of such spending, and the suddenness with which changes in the direction or the level of such spending occur. With respect to general economic climate, defence spending may, within limits, expand an under-utilized or stagnant situation, sustain a declining one, or do considerable harm if suddenly forced on top of a full expanded economy. Canada has had some experience with these variations. What happened during World War II and the Korean War demonstrates two quite different results.

This paper proposes only to describe in general terms some of the influences that defence spending has exerted on the Canadian economy in the recent past; to indicate its effect on some of our major industries, and to point to a few grave problems with which defence spending is inseparably linked. Certain conclusions will be drawn, but are only offered with the important reservation that no absolutely final, definitive judgments can be made in this area, where so much is subject to great and unforeseeable change.

II Influence On The General Level Of Business

Consideration of the influence of defence expenditures on the general level of business is best approached by looking at what occurred during four time periods. These are 1939 to 1945, 1946 to 1949, 1950 to 1954 and the years 1955 to date. In the first period, the tremendous volume of spending, reaching more than a third of gross national product in 1944, was associated with World War II. Spending raised business activity from levels of under-employment to a place where resources were in very short supply and prepared the ground for much of the post-war period of expansion and inflation. In the second period expenditures were of relatively little importance and the economy stood at high levels based on civilian demand. In the third period expenditures associated with the Korean War and the defence build-up were superimposed on an economy operating at a high level. They combined with other expansionary forces to create strong inflationary tendencies and to complicate Canada's balance of payments problems. In the years since 1955, although defence expenditures have been declining generally they often added an element of buoyancy in a situation where the general rate of economic growth was slower than in the earlier years. 1939-1945—In September 1939, Canada was still suffering from the Great Depression of the 1930's. Unemployment was estimated at no less than 11.4 per cent of the labour force. Gross national product stood at about 5.6 billion and there is evidence that considerable excess plant capacity existed. The problem was to mobilize these under-employed resources and set them to work to satisfy military as well as mounting civilian demands. In spite of the rapid increase in defence expenditure, it was not until late 1941 that the slack was taken up, and serious competition appeared between the needs of the armed forces and the demands of the civilian sector.

A new phase of the war economy began in 1942. By that time resources were fully employed and further increases in output for war purposes meant diverting resources for civilian needs. In 1944, government expenditures reached \$5 billion, about 42 per cent of the nation's output, as contrasted with about 12 per cent in 1939. Civilian employment outside of agriculture was up by about 600 thousand over 1939, while there were 780 thousand in the armed services compared with only nine thousand at the outbreak of the war. Inflation was controlled mainly by diverting resources from business investment and by encouraging huge savings by consumers, as well as by direct price control. 1946-1949—While government expenditure was reduced sharply as the war drew to a close, accumulated civilian demand, both domestic and foreign, began to exert a strong influence. Gross national product in 1945, at \$11.8 billion, was down only slightly from that of 1944. Between 1946 and 1949, defence expenditures remained small. At the low point reached in 1947 they amounted to about \$200 million, a mere 1.7 per cent of gross national product.

Accumulated savings and the enormous pent-up demand, coupled with the needs of overseas countries whose industries had been destroyed by wartime operations, continued to carry the Canadian economy along at a high level. The period was one of heavy investment in plant and equipment and extensive use of credit. Demand far outstripped supply, putting strong upward pressure on Canadian prices. Hundreds of thousands of ex-servicemen were reintegrated into civilian life with unexpected ease. By 1949, with supply catching up to demand, gross national product had reached \$16.3 billion and unemployment stood at 2.8 per cent of the labour force. 1950-1954—When the Korean War broke out in 1950, the situation was in marked contrast to 1939 as very little slack existed in the economic system. Accordingly, the effort to re-equip for defence purposes, which by 1953 still accounted for only 7.6 per cent of gross national product placed severe strains on the economy. Prices began to rise almost with the outbreak of the war. The federal government

again had to introduce measures to divert scarce resources to defence. Although the situation was stabilized sufficiently by 1952 to allow many controls to be relaxed, heavy demand continued throughout this period. This related to direct defence expenditures, business investment in plant, much of which was for defence purposes, and continued high levels of domestic consumption and exports.

The close of the Korean War, and the consequent reduction in defence expenditures both here and abroad, was associated with one of the few periods of economic decline in the North American economy since 1939. The year 1954 was one of mild contraction in Canada. Gross national product, having reached \$25 billion in 1953, dropped slightly to \$24.87 billion the following year. Defence spending shaded off to 6.9 per cent of gross national product. Unemployment rose to 4.3 per cent of the labour force reflecting the general decline in business conditions. 1955-1963—In the period, spending on defence contributed decreasingly to the upward movement of business activity. Between 1955-1963 defence fell gradually from 6.5 per cent to 4.2 per cent of gross national product. In the years immediately following the 1954 recession the Canadian economy moved ahead rapidly largely as a result of the impetus provided by large scale business and government investment in capital assets. High personal incomes and a heavy backlog of housing needs initiated a high level of residential construction. In the latter years of the decade the rate of growth slowed somewhat in keeping with reduced activity in North America. In these latter years defence spending probably contributed an element of buoyancy in a situation of easing economic activity.

In summarizing the effect of defence spending on the general level of business in Canada in the past 25 years, it is difficult to avoid the conclusion that such spending has not only been occasionally of overwhelming importance, as in periods of actual warfare, but also has practically always been of some importance at other times in either preventing or cushioning the effect of a decline or inducing a mild increase in business activity. The only period when little impact was registered, the immediate postwar area, was one characterized by a quite extraordinary combination of circumstances wherein war-created shortages at home and abroad were associated with great purchasing power in the hands of consumers, and a war-swollen capacity to produce on the part of the manufacturers.

III. DEFENCE SPENDING AND INDUSTRY

From the standpoint of industrial development, World War II was probably one of the most important periods in Canadian history. It was during the war years that this country emerged from its traditional position as a supplier of basic materials to become an industrialized state. The record of what was accomplished is impressive. Existing industry was converted and expanded, and many new industries were established. In a remarkably short time, Canada produced a large volume of complex war goods while at the same time sharply increasing the already large output of basic materials. The following quotation graphically depicts the extent of the war production effort:

From the automotive plants came over 700,000 mechanical transport vehicles and more than 50,000 armoured fighting vehicles; field, anti-aircraft and naval guns were produced to the number of more than 40,000; more than 1,700,000 small arms were manufactured; ammunitions, chemicals and explosives were produced in astronomical figures. From shipyards came escort ships, minesweepers, landing craft and cargo vessels; from aircraft factories combat, patrol and trainer aircraft. Instruments and signals equipment were produced having a value of \$551,000,000. The output of steel, coal, lumber, metals and basic materials

was substantially increased, the output of aluminum became greater than the peacetime production of the entire world. From the general manufacturing industry came \$1,558,000,000 worth of food and furnishings for military establishments and personal equipment for the services.¹

Something of the extent of this industrial growth is illustrated by the data in Appendix A—*Indexes of Real Domestic Product for Selected Canadian Industries*. In this Appendix the Indexes are based on 1949 = 100. It will be noted that total gross domestic product increased from 60.2 in 1939 to 103.0 in 1944, the peak year of output. The increase occurred largely in the manufacturing sector, and within that again, mainly in the durable goods industries. Some of these increases are quite remarkable. For example, the output of iron and steel products trebled, as did that of electrical apparatus and supplies (including electronics). The output of the transportation equipment industry, (including aircraft and ship-building) increased no less than six-fold.

Again defence expenditures influenced industrial growth during the 1955's and 1960's. Following the heightening tension in Europe and the start of the Korean War it became apparent that a defence preparedness program would be needed. Apart from the direct impact of defence orders for equipment and services the Canadian Government gave assistance to defence and defence supporting industries in order to build up productive capacity.

Among the programs employed were capital assistance and accelerated depreciation. Standby Crown-owned defence assets were procured and have been maintained and premiums allowed to secure Canadian produced goods. In the 1960's, following major decisions to participate with allies in production and development sharing programs considerable efforts were directed to establishing sources of component parts, competitive production capacity and to encourage research development.

Among the large Canadian manufacturing industries, aircraft, ship-building, and electronics have continued to be affected substantially by defence spending. The effect of such spending on the aircraft and shipbuilding industries is examined hereunder by an analysis of size, employment, and value of output as a function of annual expenditures against prime contracts for defence purposes. The electronics industry is discussed in more general terms.

Aircraft and Parts

The Canadian aircraft and parts industry, having reached a considerable size in World War II, declined in the immediate postwar era, but experienced a revival as a result of the Korean War and the general defence build-up in the 1950's. A high proportion of the industry's business represents defence. In 1950 the industry comprised 15 establishments, employing about 10,500. Factory shipments amounted to about \$55 million.

By 1955, this industry had more than trebled in size. It then embraced 52 establishments with 33,000 employees engaged in turning out nearly \$354 million worth of goods and services. In that year, expenditures on prime contracts under the aircraft programme amounted to no less than \$448 million. For more recent years, the equivalent statistics for shipments are at roughly comparable levels. During 1961 and 1962, for example, annual shipments amounted to about \$304 million and \$352 million respectively. Defence spending under the aircraft programme in the same two years amounted to \$231 million and \$244 million, emphasizing the strong reliance of this industry on defence procurement. Aside from some commercial repair work, the production of reciprocating engines, and the construction of a few types of light aircraft, the industry is very closely tied to defence sales, both domestic and foreign.

¹Page 7, Volume I, Kennedy, J. de N; *History of the Department of Munitions and Supply Canada in the Second World War*.

It should be emphasized in connection with this industry that a considerable proportion of the defence work done has been for foreign sources, especially the United States. Sales of equipment in that market, stimulated in recent years by Defence Production Sharing arrangements, have given support to the industry despite reduced levels of Canadian procurement.

Shipbuilding

In the shipbuilding industry, defence spending has represented a somewhat smaller percentage of total business, for two reasons. First, the major firms in the industry often produce a range of products for sale to a more diversified market than is the case for aircraft and parts manufacturers. Secondly, although non-defence work has been relatively hard to get the industry has still managed to acquire some volume of new non-defence construction as well as commercial repair work.

Nevertheless, defence spending has been of great importance to the industry. Factory shipments by 79 establishments employing over 22,500 workers amounted to approximately \$183 million in 1953. Defence spending in the same year was valued at about \$99 million. In 1955, 70 establishments with 16,800 employees shipped \$134 million worth of goods. Defence outlays for the year were \$87 million. In 1961, shipments stood at \$137 million from 63 establishments employing some 14,800 persons. Defence payments amounted to \$52 million.

Electronics

Some material available allows a more general discussion of the electronics industry and its relationship to defence expenditures not possible with shipbuilding and aircraft and parts industries. The industry illustrates many of the problems associated with a highly specialized manufacturing industry in Canada and the influence exercised by defence expenditures.

Broadly speaking the electronics industry in Canada is dominated by a number of large firms, in the main foreign owned, established basically to manufacture foreign designed and developed products for the Canadian market. The Canadian industry imports parts and equipments where demand is not sufficient to warrant production in this country at a price that will encourage purchasing by plants located in Canada. Plants located in Canada usually engage in less research and development work than associated companies in the heavily industrialized nations of the parent companies. The parent firms supply technical back-up activities to Canadian subsidiaries.

Canadian located manufacturers draw a very high portion of their business from the Canadian market and sometimes find it difficult to make much headway in the export field. This is probably a result of several factors including relatively high unit costs for short production runs, lack of unique products and sometimes of controls imposed by foreign associates. It is also because many companies have never geared for an appreciable export sales effort.

Demand for defence products has encouraged expansion of facilities and output. In some cases military requirements provided a basic demand on top of which profitable commercial sales could be developed. In other instances facilities have been established to produce components and parts for use in equipment, thereby widening the technical ability of the industry. The industry has shown a truly remarkable rate of growth since 1939, increasing by eighteen times. While a great deal of the demand came from non military sources, defence has been and still is a very important influence. In recent years estimates suggested that defence absorbed about 20 to 25 per cent of Canadian supply

while during the Korean War and World War II the evidence indicated a much higher proportion. Only in the 1946-1949 period has military demand been inconsiderable.

But it is not only in the important quantities of goods and services taken off the market that defence has contributed to growth. In addition it has supplied a vigorous drive to provide the most up-to-date equipment that ingenuity can devise. Abroad a considerable portion of research in the electronics field is financed by defence. The same is true in Canada. Defence-oriented research has been instrumental in providing companies in this country with a number of specialized items for production and sale.

Finally in the 1960's integration of Canadian and American efforts for defence of North America and the concomitant Defence Production Sharing program for economic co-operation have given the industry access to a very large U.S. market for defence goods. This, in itself can provide the industry with some incentives for improvement of production capabilities, design and development capacity, and other aspects necessary to better its chances to trade abroad.

IV. THE REGIONAL INFLUENCE OF DEFENCE SPENDING

Until recently, no material was available that permitted even a rough appraisal of the influence of defence procurement spending on particular Canadian regions. It has, of course, always been possible to isolate specific communities whose economic life centred around a military installation or a defence plant, and indicate some of the effects that a change in spending would have on the installation or the area. However, nothing was available that allowed any type of measurement on a broader basis.

Recently, however, data on expenditures against Canadian prime contracts, placed in Canada for procurement of goods and services, have been tabulated for four major industries. These are aircraft and parts, electronics, shipbuilding, and instruments.

Even so, we do not have a complete picture. The material is restricted to Canadian prime contracts only: it takes no account of subsequent transfers of business between areas by sub-contracting for materials and parts, and it fails to allow for expenditures against goods and services bought from other industries. Within these limits, however, the data provide quantitative indications of the extent to which some economic areas benefit from Canadian defence expenditures in these four industries. Appendix "B" sets out this data for the fiscal years 1960-61 and 1962-63.

The heavily industrialized complexes of southern Ontario and Greater Montreal account for most of the business received. In 1960-61, of total expenditures for the four major industries of \$277 million, the Montreal area obtained nearly \$144 million. The province of Quebec received \$150 million. Metropolitan Toronto got \$74 million worth of this business, with a further \$27 million to the rest of the Province of Ontario, leaving only about \$26 million for the rest of Canada. For 1962-63, the total was about \$259 million. Shares by area were \$117 million for Montreal, an additional \$13 million for the remainder of the Province of Quebec, and \$62 million and \$31 million for Toronto and the rest of the Province of Ontario respectively. The remaining \$36 million went to other areas of the country.

While the most highly industrialized areas of Canada perform most of the work on prime defence contracts, such expenditures are also of importance to the Maritimes, British Columbia, and the Winnipeg area. In the case of

Winnipeg and British Columbia, the bulk of defence procurement is directed, respectively, to aircraft and shipbuilding. In the Maritimes, expenditures were made in the electronics, aircraft and shipbuilding industries.

V. DEFENCE EXPENDITURES FOR FOREIGN TRADE

Defence expenditures exercise a great influence on Canada's balance of trade and international payments. The dominant factors appears to be our trade with the U.S. and fluctuations therefore depend on U.S. decisions concerning strategy which influences spending in Canada.

Canada has held a favourable balance of payments position in relation to total expenditures on defence over the past five years. Foreign expenditures in Canada on the defence account have amounted to about \$2.4 billion against Canadian expenditures abroad of about half as much. U.S. expenditures in Canada amounted to nearly \$2.2 billion in contrast to Canadian expenditures in that country of about \$0.7 billion. The highly favourable Canadian balance results in the main from U.S. expenditures to provide and maintain continental defence installations and to purchase uranium which the U.S. classifies as a defence requirement. That and continental defence expenditures in Canada by the U.S. account for most of the surplus in Canada's favour.

In contrast, the situation in relation to production of military hardware of the kind needed for modern forces is quite different from that favourable position. Canada normally imports more of such items than are sold abroad. However, under the Canada-United States Defence Production Sharing program U.S. procurement, which included F104 MAP and Caribou I aircraft, gave a small advantage to this country during the 1959 to 1963 period. If these orders were disregarded exports would stand perhaps \$150 million lower revealing Canada's more normal position as a net importer of weapon systems.

To review the background of current developments, three times since the outbreak of World War II defence expenditures have exercised an influence on our foreign trade great enough to warrant extraordinary government action. In 1939, the traditional trading pattern for Canada was to use her current account surpluses with Britain and other countries to finance her deficits with the U.S.A. World War II reduced supplies of convertible currencies from traditional markets while increasing imports from the United States. To finance these increases, comprising largely defence goods or plant intended for defence purposes, a variety of measures were taken, including the Hyde Park agreement of 1941. That arrangement provided for the sale of specialized war materials by Canada to the U.S.A. to provide financing for Canadian imports.

In 1950 and 1951, Canada incurred substantial deficits on current account, due in large measure to investment demands, at least some of which originated with defence expenditures. The defence requirements of the Korean War were superimposed on the Canadian economy, then operating at close to capacity. This exerted inflationary pressures, and greatly increased imports. International buying took place on a large scale, in anticipation of shortages and price increases. The government had to act to control imports and to channel resources to essential industries.

Since then, the concepts of continental defence, weapons standardization and development and production sharing have accelerated the adoption by Canada of United States-type equipment. The complex nature of modern weapons systems, their very high cost, rapid obsolescence, and the cost of carrying out of their research, development and production processes, have resulted, within the last few years, in increasing Canadian reliance on U.S. sources for research and development, and often the production of most major equipment.

If the Canadian requirement was too small or too immediate to permit economic production in Canada, the equipment had to be purchased directly from the U.S.A. Where production in Canada was feasible, the cost of royalties and technical assistance as well as of components still meant an outflow of Canadian defence money to the U.S.A.

This trend meant that an increasing proportion of the Canadian defence dollar would go to U.S. industry. To offset such dependence on United States developed equipment, the Canada-United States defence production sharing programme was initiated in 1959. This arrangement, while restricted to defence equipment, provided a significant degree of access for Canadian firms to the world's largest single market for highly-engineered goods.

In 1963, \$142 million worth of U.S.A. defence production sharing business was placed with Canadian industry. Total purchases by the U.S.A. in Canada in this category during the first 5 full years of the programme amounted to \$748 million. Against this, Canadian defence production sharing business placed in the U.S.A. amounted to \$152 million in 1963, bringing the total for the 5 years to \$678 million. The cumulative 5 year balance of such business between Canada and the U.S.A. was, accordingly, \$70 million in Canada's favour. The long-term aim of the two countries, and one which is important to both, is to maintain a rough balance at increasing levels in their trade in defence production sharing items.

Generally speaking, sales of Canadian defence equipment abroad help to keep down the cost of the limited requirements of the Canadian Armed Forces; stimulate research and development in secondary industry; contribute to the standardization of military equipment among allied countries; and benefit the Canadian economy through their effect on such things as employment, the technological capability of industry, and our balance of payments. The success of the defence production sharing arrangement with the United States has led to recognition of the desirability of establishing comparable non-conflicting arrangements, of rather more limited scope, with other NATO countries.

The ability of Canadian industry to compete effectively with foreign industry for defence production business is, in the long run, dependent upon its ability to develop equipment and components that have the potential to meet some future military requirement, and to be able to produce items of required quality within necessary time limits at a competitive price. This means that Canadian manufacturers must be competitive with United States and other manufacturers of comparable products.

The Government has had to institute action to assist Canadian industry to become competitive. This action has taken many forms, among the most important of which, although small in money terms, is aid to industry to develop items that have some defence potential, to establish qualified sources for the production of components and equipment and to modernize Canadian defence industry.

The benefits of this assistance are not limited to defence production. The resulting technological advances in the complex production operations of highly sophisticated weapons systems spread readily into other areas of Canadian production. The economy as a whole is made stronger and better able to make its way in world markets.

Several major problems are faced by Canada in attempting to reach export markets for manufactured goods. Two show up clearly in the defence industry field. The first is the effect of foreign ownership or control of much of this country's manufacturing industry. In the main foreign owned operations in Canadian secondary manufacturing were intended to produce for the Canadian market or to take advantage of British preferential tariff rates.

This has resulted sometimes in a tendency to exclude Canadian plants from foreign markets or to inhibit Canadian development of unique products suitable for sale abroad. However, the Defence Production and Development Sharing Programs have been bringing about relaxations in these restrictions. Canadian subsidiaries are taking an increasing part in exports and in development for defence.

Secondly, some Canadian owned and controlled companies, never having developed extensive export programmes, appear unwilling to act aggressively in seeking foreign defence business. Provision of favourable circumstances for exporting can be done at the government level but individuals and firms must act to expand trade.

VI. POSSIBILITIES AND PROBLEMS

So much is background. It is part of the story of what defence expenditures have contributed to Canadian economic growth and development. The question that now has to be asked is how changing levels of spending may influence the future. The answer to this depends on what the future holds in the way of changes in the level of spending and on the direction in which expenditures are channelled. Will disturbed international conditions make a large increase in spending necessary or will a continued period of relative stability permit further reductions? What decisions on defence policy will be taken by the Government thereby affecting the way in which available funds are spent and influencing the business done by plants, industries and areas of the country?

Inasmuch as we cannot know what the future holds the best that can be offered here is to suggest the results of two or three possible courses of action. These must be based on assumptions as to spending levels and possible decisions as to the direction spending may take. To do this, rather extreme positions have to be assumed, making the discussion perhaps a trifle academic. Nevertheless this approach has the advantage of sharply emphasizing problems inherent to some degree in less extreme situations that have characteristics similar to those stated.

First of all is it possible to visualize a sharp reduction in total funds available for defence? Such an action combined with the fact that major weapon systems are costly leads to the decision that they cannot be conceived, designed, developed and produced in Canada but must be purchased abroad. Purchases abroad could, under defence production sharing arrangements, be offset by foreign procurement in Canada composed largely of sales of components or of less sophisticated items.

This approach has serious implications for the technical development competence of Canadian manufacturers. Even though purchases of major systems abroad are balanced by equivalent dollar-value business in Canada the effect is not the same. The difference lies in the demands placed on the technical knowledge of manufacturing companies. A major new weapon system conceived, designed, developed and produced places the ultimate in demands for ingenuity on prime contractors and supporting firms. It is this struggle for new and better products that keeps industry in the front rank of technical knowledge.

If most major systems are bought abroad there is a good chance that subcontracting against foreign systems will not be enough to maintain competence. Foreign prime contractors have their own supporting firms to which they generally turn during the conceptual phase of weapon building for assistance in designing and developing components. Canadian subcontractors will not likely be included during the conceptual phase and may well miss some

part of the development phases as well. This is a serious disadvantage to producers and must inevitably lead to a gradual decline in technical knowledge and a lessening in ability to compete for contracts.

The second major possibility is a considerable expansion of the defence effort leading to the design, development and production of some major weapon systems in this country. The result would like be a heavy emphasis by Canadian industry on technological improvement. Here the problems are largely costs and the difficulty of making sales to foreign countries. Because major systems are extremely costly, making quantity sales of production models to major industrial nations is very difficult. The hundreds of millions and often billions of dollars of business is much sought after and governments are under extreme pressure not to place such contracts abroad but to adopt comparable domestic designs.

The third possibility lies between the extremes stated above. Clearly it would be desirable to find a course of action that would permit, indeed encourage, expansion of technical skills while at the same time making it feasible to take advantage of the economies offered by procuring many major weapons abroad. Present defence development sharing policies designed to encourage participation by Canadian companies in the research and development of U.S. defence projects are a step in this direction. Even so, there are at least two problems here. One is the degree to which doors can be opened sufficiently early to assure Canadian participation in the conceptual phases of U.S. major projects. Unless access to the conceptual phases of weapon development is possible Canadian firms will be handicapped. A few minutes thought will indicate how immensely complicated providing such access becomes and how it implies increasing integration of Canadian and U.S. business and armed forces.

The second problem concerns the extent of specialization of Canadian industry. Canadian industry has never been able to compete abroad in all areas of economic activity. In specialized fields Canadian industry has done well and the probabilities are that if specialized areas of defence business could be developed to the point where this country were an acknowledged world leader, markets could be found abroad for its production.

Because participation by Canadian industry in foreign defence production programs does not itself assure maintenance of a high technological level it needs to be supplemented wherever possible by creation of joint defence research, development and production programs with other countries to meet mutual military requirements. Establishment of such programs on a bilateral basis can lead to trilateral or multilateral programs where other allied countries have similar military requirements. The current joint UK/Canada plan for development and production of the CL89 Surveillance Drone to meet British and Canadian military requirements may serve as an example of the type of joint program visualized. As in any such solution, there are major obstacles to the development of this concept, chief of which are considerations of national prestige and the extent of the respective military requirements for the equipment involved.

In general, it can be said that unilateral national development of major weapon systems amongst the western countries is rapidly giving way to the concept of collaboration among allies in defence research, development and production in the interest of conservation of the respective national resources in money, manpower and technological capabilities. In this general direction, with all its inherent difficulties, appears to lie the best hope for strengthening scientific and technological capability within Canada's engineering industry.

APPENDIX "A"

INDEXES OF REAL DOMESTIC PRODUCT FOR SELECTED CANADIAN
INDUSTRIES—1939 and 1944

(1949 = 100)

	1939	1944
Gross Domestic Product	60.2	103.0
Manufacturing	48.7	106.1
Durable Manufacturing	42.7	128.3
Wood Products	54.0	76.1
Iron & Steel Products	39.1	118.4
Transportation Equipment	37.7	235.7
Non-ferrous Metal Products	58.4	130.9
Electrical Apparatus & Supplies	28.4	85.5

APPENDIX "B"

TABLE I

CANADIAN DEFENCE EXPENDITURES AGAINST PRIME CONTRACTS
PLACED IN CANADA FOR FOUR MAJOR INDUSTRIES BY AREA,
FISCAL YEAR 1960/61

Area	Industry				Total
	Electronics	Aircraft	Instruments	Shipbuilding	
	\$000	\$000	\$000	\$000	\$000
Maritimes.....	2,933	5,595	—	4,935	13,462
Montreal.....	27,074	101,081	8,695	6,928	143,778
Other Quebec.....	182	1,793	—	4,066	6,041
Total Quebec.....	27,257	102,874	8,695	10,994	149,819
Toronto.....	13,375	57,186	3,642	1	74,204
Niagara.....	6,957	779	—	—	7,736
Other Ontario.....	1,024	1,055	6,840	49	19,970
Total Ontario.....	32,356	59,021	10,482	50	101,909
Winnipeg.....	—	3,621	—	—	3,621
Other Manitoba.....	—	—	—	—	—
Total Manitoba.....	—	3,621	—	—	3,621
Saskatchewan.....	—	—	—	—	—
Alberta.....	—	3,016	5	—	3,021
Vancouver.....	18	343	—	5,119	5,481
Other B.C.....	—	—	—	—	—
Total B.C.....	18	343	—	5,119	5,481
Total Canada.....	62,564	174,470	19,182	21,098	277,313

Figures do not balance exactly because of adjustments caused by rounding.

APPENDIX "B"—Concluded

TABLE II

CANADIAN DEFENCE EXPENDITURES AGAINST PRIME CONTRACTS PLACED
IN CANADA FOR FOUR MAJOR INDUSTRIES BY AREA
FISCAL YEAR 1962/63

Area	Industry				Total
	Electronics	Aircraft	Instruments	Shipbuilding	
	\$000	\$000	\$000	\$000	\$000
Maritimes.....	2,460	5,777	—	6,674	14,912
Montreal.....	22,052	75,128	10,148	9,563	116,890
Other Quebec.....	267	1,005	—	12,055	13,328
Total Quebec.....	22,319	76,133	10,148	21,618	130,218
Toronto.....	18,022	36,277	7,469	—	61,768
Niagara.....	7,802	1,184	1	—	8,987
Other Ontario.....	14,996	3,238	6,124	58	24,415
Total Ontario.....	40,821	40,699	13,594	58	95,172
Winnipeg.....	—	4,615	8	—	4,623
Other Manitoba.....	—	—	—	—	—
Total Manitoba.....	—	4,615	8	—	4,623
Saskatchewan.....	—	—	—	—	—
Alberta.....	—	2,637	—	—	2,637
Vancouver.....	6	204	—	5,069	5,279
Other B.C.....	—	—	—	6,408	6,408
Total B.C.....	6	204	—	11,476	11,686
Total Canada.....	65,606	130,065	23,750	39,826	259,247

Figures do not balance exactly because of adjustments caused by rounding.

THE ECONOMIC CONSEQUENCES OF DISARMAMENT

By: G. ROSENBLUTH

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Most of the major economic problems that would arise in the event of disarmament on a substantial scale fall into one of two broad classes. First there are the problems of "aggregate demand". Defence expenditures are part of the total demand for goods and services in our economy, and when these expenditures are reduced, production and employment fall. *In the absence of compensating measures* one would therefore expect disarmament to intensify the problem of unemployment which is already with us.

Secondly, there are problems of "mobility". Even, if compensating measures are taken and aggregate demand is maintained, one cannot expect that the industries, areas and occupational groups that experience an expansion of demand as a result of compensating measures would coincide with those that experience a decline in demand due to disarmament. Indeed this is impossible since the largest "industry" affected by disarmament, in terms of employment, would be the armed forces. There would therefore be the problem of getting labour, capital equipment and business enterprise to shift their activities, to produce new products, to acquire new skills, to move to other regions. There would be the problem of the extent to which compensating measures can and should be tailored so as to minimize the need for mobility, and the problem of what to do in cases where adequate regional or occupational mobility cannot be achieved.

It will be recognized that both the problem of aggregate demand and the problem of mobility are with us now and are frequently discussed in connection with the current problem of unemployment. Disarmament would not create these problems, but it would intensify them, and one of the aims of research is to answer the question: "How much?". It is also clear that a precise answer to this question cannot be given since no one can predict when, if ever, disarmament will come, what the level of defence expenditure and employment will be at that time, what the extent of disarmament will be and at what speed it will proceed. One can only illustrate the nature and dimensions of the problem by making plausible estimates based mainly on current defence expenditures and disarmament plans now under discussion. It is clear that the speed of disarmament is of crucial importance in determining the severity of the problems that will arise, in terms of both aggregate demand and mobility.

My approach in this paper is to compare the effects of two patterns of disarmament, one "fast" and one "slow". Both are based on official proposals put forward for international negotiation.

Special mention should be made of the problem of scientific and technical research and development, which is one of the major problems in the "mobility" category. Research and development resources are highly concentrated on defence problems, so that disarmament must involve a change in the direction of research and development activity and may involve a change in its extent. These changes may have implications concerning the rate of technological progress and hence the rate of economic growth.

THE PROBLEM OF AGGREGATE DEMAND

The Proportion of Output devoted to Defence:

Canadian Defence expenditures on currently produced goods and services are shown in Table 1 in relation to the Gross National Product. We follow the convention adopted in the Public Accounts of defining "defence expenditures" as expenditures by the Department of National Defence and the Department of Defence Production. Expenditures by the Atomic Energy Control Board and Atomic Energy of Canada Ltd., are omitted since our activities in this field are supposed to be confined to Civilian applications. Defence expenditures, both in absolute terms and as a proportion of G.N.P. rose from very low levels after the war to a peak of nearly two billion dollars or 7.6 per cent of G.N.P. in 1953 and have tended to decline somewhat since that time, running at about four and a half per cent of G.N.P. or a little over one and a half billion dollars between 1959 and 1961, and probably falling below four per cent of G.N.P. in 1963. In round figures the present level can be taken as four per cent of G.N.P.

TABLE 1
CANADIAN DEFENCE EXPENDITURES AND GROSS NATIONAL PRODUCT

Year	(1) Defence Expenditures on Goods and Services (\$ millions)	(2) Gross National Product (\$ millions)	(3) (1) as percentage of (2) (%)
1947.....	227	13,165	1.7
1948.....	236	15,120	1.6
1949.....	361	16,343	2.2
1950.....	493	18,006	2.7
1951.....	1,157	21,170	5.5
1952.....	1,800	23,995	7.5
1953.....	1,907	25,020	7.6
1954.....	1,727	24,371	6.9
1955.....	1,760	27,132	6.5
1956.....	1,802	30,585	5.9
1957.....	1,765	31,090	5.5
1958.....	1,661	32,894	5.1
1959.....	1,559	34,915	4.5
1960.....	1,546	36,254	4.3
1961.....	1,613	37,421	4.3
1962.....	1,680	40,401	4.2
1963.....	1,576	43,007	3.7

SOURCE: D.B.S. *National Accounts, Income and Expenditure*.

These figures tend to understate the demand for goods and services attributable directly to defence expenditures since they exclude payments by the two defence departments that are not for currently produced goods and services, such as grants to municipalities and provincial governments, payments for land and existing buildings, contributions to superannuation funds. Some of these transfers are really indirect payments for goods and services. The inclusion of these sums does not, however, alter the order of magnitude of the figures significantly: Total expenditures of the two departments as given in the Public Accounts amounted to \$1657 million in the fiscal year 1961/62 and \$1542 million in the fiscal year 1960/61.

The ratio of defence expenditure to G.N.P. given above (4 per cent) may be compared with a figure of about 7 per cent for the United Kingdom in 1960 and between 9 and 10 per cent for the United States in recent years (Ref. (1), pp. 191, 203).

The figure of 4 per cent of Gross National Product is a good index of the proportion of our output of goods and services diverted from other uses for the sake of defence, on the assumption that an equal level of employment and output could be maintained in the absence of defence expenditures. It is not, however, an adequate measure of the proportion of aggregate demand that would have to be "replaced" in order to maintain employment and output if defence spending disappeared. For that latter figure, it is necessary to add an estimate of the demand for Canadian exports that is attributable to foreign defence expenditures.

An accurate estimate of the proportion of Canadian output attributable to foreign defence expenditures cannot be made. It would have to include not only expenditure on defence contracts placed with Canadian suppliers, as well as subcontracts (and there is not even a reliable and complete record of such prime contracts and subcontracts), but also the Canadian materials going indirectly into defence work done abroad.

A very rough estimate of the import content of United States defence expenditures has been made by Stevens (Ref. (3) pp. 229-232) and shows that in 1958 United States imports from Canada directly and indirectly related to defence amounted to \$588 million U.S. currency, which was about \$570 million Canadian currency or 1.7 per cent of Canada's G.N.P. for that year.

About three quarters of this sum consists of the amount estimated by the U.S. Department of Commerce as "U.S. Defence Expenditure Abroad for Goods and Services" and includes not only purchases of materials, equipment and supplies but also construction expenditure, expenditure for services and expenditures in Canada of U.S. defence personnel and Post Exchanges. The remaining one quarter consists of Canadian materials going "indirectly" into U.S. defence goods.

While the Estimate of the "indirect" Canadian content of U.S. defence expenditures is available only for 1958, the trend of "direct" expenditures for later years suggests that 1958 was a peak year:

U.S. Defence Expenditures on Goods and Services in Canada

	\$ million (U.S.)
1957	288
1958	443
1959	431
1960	379

(U.S. Survey of Current Business, January 1962, p. 14).

It is, therefore, reasonable to estimate the amount Canadian content of U.S. defence expenditure as well under $1\frac{1}{2}$ per cent of Canadian G.N.P.

Not even a rough estimate is available for overseas countries. A number of inconsistent figures on overseas prime contracts and subcontracts are given in the Annual Report of the Department of Defence Production, and the largest totals one can construct from these figures are \$45.1 million for 1961 and \$67.8 million for 1962. (Ref. (4) pp. 14, 32, 52, 53).

These figures refer to contracts placed whereas what is wanted is a measure of the use of goods and services, i.e. expenditures against contracts. For a part of these totals, (prime contracts placed through Canadian government agencies) figures of expenditure are available and show that in both years expenditure ran well below contracts placed. One may therefore estimate expenditure by overseas countries on defence procurement in Canada as not over \$45 million, and add an estimate of \$15 million—most likely very much too high—for the

"indirect" Canadian content of overseas defence contracts and subcontracts. The total of \$60 million would be about two-tenths of one per cent of G.N.P. Even if the correct figure were twice the estimate or half the estimate, it would in any case be less than one half of one per cent of G.N.P.

The direct and indirect foreign defence demand for Canadian goods and services may thus be estimated at well under 2 per cent of G.N.P. Adding foreign and domestic defence demand gives an estimate of about 6 per cent of G.N.P. for 1961 as the portion of the total demand for goods and services dependent on defence expenditures. This is a substantial figure but is still less than the proportion of G.N.P. attributable to domestic defence expenditures alone in either Britain or the United States. The present level is most probably well below 6 per cent.

These figures overstate the proportion of output and employment devoted to defence since they include imports: direct imports of equipment, expenditures on Canadian bases abroad, and the import content of equipment produced in Canada. Direct defence expenditures on foreign goods and services are estimated by Adams (Ref. (2), p. 81) at \$113 million in fiscal year 1960/61, or about 7½ per cent of total defense expenditures and 0.3 per cent of G.N.P. Indirect import content has to be estimated on the basis of a tabulation of inter-industry transactions and I hope to present rough estimates at a later date. It should be pointed out here, however, that one of the most serious deficiencies of Canada's statistical equipment (which is generally excellent) is the absence of a suitable table of inter-industry sales. An inter-industry table is available, but it is badly out of date, relating to the year 1949, its industry classifications are not sufficiently detailed, and its treatment of government expenditures is not suitable for analytic uses. These deficiencies are important not only in relation to the use of the table for the study of disarmament, but for many other investigations concerned with issues of public policy. A table based on the year 1961 is now in preparation but it is not expected to be available until 1966.

In the absence of very precise information on direct and indirect import content, our figures give the best available estimate of the proportion of aggregate demand that would have to be replaced if all defence expenditures were wiped out and a decline in employment was to be prevented. Any "compensating" expansion of other public or private expenditures would also have at least an indirect import content, and unless the import content of such compensating expenditures were significantly different from that of defence expenditures, a fall of one million dollars in defence expenditures would still have to be compensated by a rise of about one million dollars in other public or private expenditures if a fall in output is to be avoided.

It would be possible, of course, deliberately to choose compensating expenditures with a low import content. This would amount to solving our domestic problem by "exporting" a part of the decline in demand that disarmament would bring about. Such a policy would be an example of so-called "beggar-my-neighbor" policies designed to export unemployment, and one may perhaps assume that a Canadian government would wish to avoid the opprobrium earned by such conduct.

The Composition of Defence Expenditures:

Tables 2 and 3, based on the Public Accounts, summarize defence expenditures in different ways (in Table 3 major items are listed under some of the main categories, but they are selected items and hence their total does not add to that of the main category).

Nearly half of defence expenditures are devoted to pay, allowances and supplementary benefits of the armed forces and civilian personnel, and half

to purchased goods and services, with a small amount of inter-government transfers. Table 3 shows that nearly half the expenditures are on air services and that the share of air services exceeds the combined share of the army and navy.

TABLE 2
DEFENCE EXPENDITURES, CANADA
by Main Categories and Major Items

	Fiscal Years	
	1961/2	1962/3
	(\$ million)	
<i>Department of National Defence</i>		
Military pay and allowances.....	540	545
Civilian pay and allowances.....	190	195
Major procurement of Equipment.....	311	234
Aircraft and Engines.....	190	128
Ships.....	40	39
Electronic and Communication Equipment.....	35	28
Bombs and Ammunition.....	17	16
Materials and Supplies.....	108	115
Gasoline, Fuel Oil, Lubricants, for M.E.....	31	33
Food.....	22	25
Fuel for heating, cooking, power.....	16	16
Professional and Special Services, Transport and Commun- ications, Office Supplies, Publication, etc.....	106	111
Travel and Removal Expenses.....	42	40
Construction, repair and upkeep of buildings and land.....	119	109
Repair and upkeep of Equipment.....	135	131
Contract repair.....	66	66
Ships.....	19	18
Electronic Equipment.....	19	19
Aircraft.....	18	15
Pensions and Other Benefits.....	65	68
Municipal and Public Utility Services.....	19	21
Mutual Aid and NATO Contributions.....	11	25
Development.....	10	11
Other Expenditures.....	19	24
	1,633	1,589
<i>Department of Defence Production</i>		
Administration and General.....	18	19
Capital Assistance Programme.....	2	2
Technological Capability Programme.....	4	8
	24	29
Total.....	1,657	1,618

SOURCE: *Public Accounts*.

The industries with the largest share of defence procurement are aircraft, construction, shipbuilding, transportation, petroleum and coal products, electronic equipment. Bombs, ammunition and armament do not account for a large proportion of total expenditure.

TABLE 3
BUDGETARY DEFENCE EXPENDITURES

	Fiscal Years	
	1961/2	1962/3
	(\$ million)	
Naval Services.....	272	270
Army Services.....	442	443
Air Services.....	781	714
	1,496	1,426
Administration and General—D.N.D.....	23	24
D.D.P.....	18	19
	41	43
Research and Development.....	40	41
Capital Assistance and Technological Capability Programme...	6	10
	46	51
Mutual Aid and NATO.....	11	25
Contributions to Armed Forces Superannuation Account.....	56	58
	1,650	1,604

SOURCE: *Public Accounts*.

THE PROBLEM OF AGGREGATE DEMAND UNDER CONDITIONS OF RAPID DISARMAMENT:

Among disarmament schemes with official international status the fastest timetable is provided by the Soviet proposal for general and complete disarmament put forward for discussion at the Geneva conference on disarmament. Under this scheme general and complete disarmament is to be achieved in five years.

The most severe problem of aggregate demand that it is reasonable to contemplate would arise if the Soviet proposal were implemented, and if, at the time of its implementation the proportion of aggregate demand due to defence were about the same as now. Total real output of the Canadian economy has been rising at an average rate of 4 per cent per year in recent years, (1951 to 1962 increase on Gross National Product at constant prices). It is likely to go on rising at a substantial rate as the labour force increases and technological progress raises output per worker. Defence expenditures in real terms, on the other hand are not likely to rise significantly. The percentage of G.N.P. devoted to defence is therefore likely to continue to fall.

Our analysis is based on data for the 1961/62 fiscal year since there has not been time to analyze the more recent figures.

The Soviet proposals provide for disarmament in three stages, the first two of two years duration each and the third one year. Table 4 shows estimates of the amount by which defence expenditures might be reduced in each of the first two stages. In Stage I all means of delivering nuclear weapons are to be destroyed and their production is to cease (except for a small stock of deterrent missiles to be kept by both the United States and the Soviet Union). This includes aircraft, ships, artillery and rockets capable of nuclear delivery. I make the extreme assumption that this provision would eliminate all defence procurement, upkeep and repair of aircraft and ships in Canada.

Soviet and U.S. armed forces are to be limited to 1.9 million men in Stage I with "agreed levels" for other countries, and the production of conventional armaments, transport, etc., is to be reduced proportionately to the reduction in the armed forces. To work out the implications of these provisions for Canada I make the arbitrary assumption that the proportionate reduction in Canadian armed forces would be about the same as that implied for the U.S. by the Russian proposal, that is, about one-quarter, and this figure is used in Table 4. A larger proportionate reduction is applied to construction, since a substantial part of this item is *new* construction, which one would expect to be cut back severely in the event of disarmament. A smaller proportionate reduction has been applied to civilian pay and allowances to allow for the fixed element in administrative overhead. The Soviet proposal provides for a 30 per cent reduction in the *stock* of conventional armament, etc. and this factor has been applied to repair and upkeep of equipment other than ships and aircraft.

TABLE 4
HYPOTHETICAL SCHEDULE OF REDUCTION IN CANADIAN
DEFENCE EXPENDITURES

—Rapid Disarmament—

(Based on Expenditures for Fiscal Year 1961/62).

	Stage I (2 years)	Stage II (2 years)
	(\$ million)	
Military pay and allowances.....	135	216
Civilian Pay and allowances ^a	23	38
Aircraft and Ships ^b	230	—
Other Major Equipment.....	20	36
Materials and Supplies.....	26	43
Services, etc.....	26	41
Construction and Repair of Buildings ^c	60	48
Repair and Upkeep—Ships and Aircraft ^b	37	—
—Other Equipment ^d	29	34
Mutual Aid and NATO.....	3	4
Department of Defence Production.....	6	10
Miscellaneous Expenditures.....	13	22
Total Reduction.....	608	492

NOTE: Reductions are 25% in Stage I and 40% in Stage II except the following:

^a—1/8-1/5

^b—100% in Stage I

^c—50%-40%

^d—30%-35%

In Stage II the Soviet proposal provides for the reduction of armed forces of the Soviet Union and United States to 1 million, that is a reduction by just under 40 per cent of the original level (before Stage I). Levels for other countries are to be agreed upon, and again it is necessary to guess at the implications for Canada. As in Stage I, the production of armament and other equipment is to be reduced in proportion to the reduction in armed forces, while the stock of such equipment is to be reduced by a further 35 per cent of the original amount.

In order to guess at the implications for Canada, I have assumed a reduction by 40 per cent of the original level in the armed forces and major

equipment procurement items in Stage II. Civilian pay and allowances is reduced by only 20 per cent of the original amount, and repair and upkeep of equipment is reduced in proportion to the stock.

On the basis of these assumptions military expenditure would be cut by about \$600 million in Stage I and \$500 million in Stage II. These amounts represent an average of 0.8 per cent of the 1961 G.N.P. in each of the two years of Stage I, and 0.7 per cent in each of the two years of Stage II.

One cannot of course claim any degree of realism for these figures since the future with regard to disarmament is quite unpredictable. But the details of the calculation could be varied a great deal without changing the *order of magnitude* of the conclusions. Since the calculations have been based on the Soviet proposal, which provides the fastest rate of disarmament of any official proposal, the actual rate of reduction is very likely to be much lower. Thus the conclusion seems quite safe that in the first four years of an international disarmament agreement the reduction that Canada would be required to make in her defense expenditures would be well under one per cent of G.N.P. per year. This conclusion could be upset by a drastic increase in the level of defence expenditures in relation to G.N.P. but in the light of current trends such an event seems most unlikely.

Continuing the exercise we find that at the end of Stage II Canada would have armed forces at 35 per cent of the present strength and total defence expenditures of about \$550 million per year, or 1.5 per cent of 1961 G.N.P.

The Final Reduction:

A plausible guess at the final reduction in Stage III is not easy. Both the Soviet and the U.S. proposals provide for the maintenance of some forces for internal security, and both provide for a large international inspection organization and a U.N. police force. One must therefore try to guess how large a contribution Canada is likely to make to these international forces. Adams suggests a residual level of defence expenditures of 1 per cent of G.N.P. in his study (Ref. (2) p. 69.) This may be on the high side. In spite of the frequent discussion of Canada's potential as a contributor to United Nations peace-keeping operations, the actual contributions in the past have not been exceptionally large, as has been remarked in this committee (Ref. (5) No. 14, pp. 463-465). As for inspection services, a careful estimate by Melman suggests that the cost of inspection for disarmament might be between two and three per cent of annual defence expenditures throughout the world (Ref. (3) p. 65). If one estimates Canada's share as five per cent of defence expenditure, this would amount to under one-quarter of one per cent of 1961 G.N.P.

While one per cent may be too high, however, it is hard to imagine that Canada's residual defence expenditure, including both inspection and peace-keeping services plus the necessary reserves, could amount to less than one-half of one per cent of G.N.P. On this basis, the reduction in defence expenditure that would be required in Stage III—the fifth year—of the Soviet disarmament proposal would be just one per cent of G.N.P.

It is thus evident that the most rapid rate of disarmament that it is realistic to contemplate would be likely to involve reductions in defence expenditure of not over about three-quarters of one per cent of G.N.P. in each of the first four years, and not over one per cent in the fifth. While such reductions are by no means trivial, they are not of an order of magnitude that suggests that they could be responsible for precipitating a major depression if uncompensated, and it does not seem particularly difficult to compensate for them by reductions in taxation and increases in government expenditure for non-defence purposes.

The Canadian economy would of course be affected by reductions in the roughly 2 per cent of the total demand for its goods and services attributable

to defence expenditures in the United States and overseas. It is, however, reasonable to suppose that the United States, Britain and other countries would take steps to counteract the decline in demand resulting from disarmament, and in this case their demand for Canadian goods and services would fall, if they fell at all, by less than two per cent. If they were to pursue "beggar-my-neighbour" policies to maintain their own employment by curtailing imports, then of course Canadian exports might be cut back by more than two per cent of G.N.P., but in a world in which general and complete disarmament takes place such policies are not likely to be fashionable.

As a rough estimate one might guess that the possible reduction in demand from this source would not be more than one-quarter of one per cent per year over a five year disarmament period. At the worst, if a full two per cent cut back took place over five years, an average of two-fifths of one per cent per year would be involved. The total reduction in defense demand over the five year disarmament period would then average more than one per cent of 1961 G.N.P. per year but still well under one and one-half per cent.

THE PROBLEM OF AGGREGATE DEMAND UNDER CONDITIONS OF GRADUAL DISARMAMENT

The United States proposal for general and complete disarmament put forward at the Geneva Eighteen-Nation Committee on Disarmament involves a much more gradual process than the Soviet proposal. It is not, however, sufficiently specific for our purpose. We have therefore combined certain elements of this proposal with others found in the disarmament model developed by Benoit and his associates (Ref. (3) Ch. 2, esp. Tables 1, 2, 3) which provides for a twelve-year time table.

Table 5 shows the time table of reductions in Canadian defence expenditures that might be expected on the basis of our assumptions. Like Table 4, it is based on the expenditures of Fiscal Year 1961-62. The main assumptions are the following:

Stage I (3 years):

Reduction of armed forces to 100,000, i.e. by about one-fifth (U.S. proposal). Military pay and allowances, materials and supplies, services, mutual aid and miscellaneous expenditures are reduced by the same proportion.

Reduction of stocks of major armaments by 30 per cent (U.S. proposal). Expenditures on repairs and upkeep of equipment are cut by the same proportionate amount.

Major procurement of equipment reduced by 40 per cent. This is roughly equal to the proportionate reduction envisaged by Benoit. The U.S. proposal does not specify the levels to which procurement is to be cut. In view of current and prospective shifts in the direction of Canadian procurement by major categories, it is not profitable to consider the several categories separately.

Civilian pay and allowances and Department of Defence Production reduced by 15 per cent on the assumption that they would be cut by less than military pay and allowances; (this assumption is not shared by the Benoit model).

Construction expenditures reduced by 75 per cent (Benoit).

Stage II (3 years):

Reduction of armed forces by a further 50 per cent of the level reached in Stage I. (In the U.S. proposal this figure is required for the U.S.A. and U.S.S.R. with "agreed levels" for other countries). Various expenditure categories cut by the same proportionate amount, as in Stage I. This would leave armed forces at a strength of about 50,000 at the end of Stage II.

TABLE 5
HYPOTHETICAL SCHEDULE OF REDUCTION
IN CANADIAN DEFENCE EXPENDITURES

— Gradual Disarmament —

(Based on Expenditures for Fiscal Year 1961-62).

Items	Stage I 3 years	Stage II 3 years	Stage IIIA 3 years	Stage IIIB 3 years
\$ million				
Military pay and allowances.....	162	323	162	
Materials and supplies.....				
Services.....				
Miscellaneous Expenditures.....				
Mutual aid and NATO.....				
Repair and Upkeep of Equipment.....	40	47	24	
Major Procurement of Equipment.....	124	93	47	
Civilian Pay and Allowances.....	32	72	44	
Dept. of Defence Production.....				
Construction, Repair and Upkeep of Bldgs. and Land.....				
	89	18	12	
Average Annual Reduction \$ million.....	447	553	289	116
% of 1961 G.N.P.....	149	184	96	39
	0.40	0.49	0.26	0.13

Reduction of armament stocks by 50 per cent of Stage I levels (U.S. proposal). Repair and upkeep expenditures are reduced proportionately.

Procurement of equipment reduced by 50 per cent of Stage I levels. This is roughly equal to the overall proportionate reduction envisaged by Benoit.

Civilian pay and allowances and Department of Defence Production expenditures reduced by 40 per cent of Stage I levels.

Construction expenditure reduced by 60 per cent of Stage I levels (Benoit).

Stage IIIA. (3 years):

Reduction of armed forces and associated expenditures by a further 50 per cent of the Stage II level. This is the percentage reduction envisaged in the Benoit proposal, although the preceding reductions in this scheme are less than in the U.S. proposal.

Stocks of equipment and armaments reduced by a further 50 per cent. This would bring them to a somewhat lower level than envisaged by the Benoit proposal. Repair and maintenance expenditures cut accordingly. A part of the reduction to be accomplished by transferring weapons to the U.N. Police Force that is to be established.

Major procurement of equipment cut by 50 per cent of the Stage II level. This exceeds the reduction envisaged by the Benoit proposal because the latter allows for the continuation of procurement under the military space program at relatively high levels.

Civilian pay and allowances reduced by 40 per cent of the Stage II levels.

Construction expenditures eliminated (Benoit).

Stage IIIB. (3 years):

The U.S. proposal provides that at the end of Stage III a country's defence effort should be limited to the minimum required for internal security, a contribution to the U.N. peace force, and to the disarmament inspection service that is to be established.

It is reasonable to assume, as was done in our account of rapid disarmament, that the residual defence expenditure might be of the order of one-half of one per cent of 1961 G.N.P.—about \$180 million at 1961 prices. This could support armed forces of about 15,000. Benoit and associates envisage a proportionately much higher residual level for the United States.

The difference between the pattern of expenditure cut-backs shown in Table 5 and that for "rapid" disarmament (Table 4) is not as great as one might expect, because under the proposals for gradual disarmament the bulk of the reductions would be concentrated in the first six years. Under the "gradual" scheme, cut-backs would average less than one-half of one per cent of 1961 G.N.P. over the first six years, while under the Russian proposal they would average between three-quarters of one per cent and one per cent over five years. Under the gradual scheme, they would then fall to one-quarter of one per cent of 1961 G.N.P. per year from the seventh to the ninth year, and one-eighth of one per cent in the last three years.

There may be a further reduction in aggregate demand due to disarmament in the United States and elsewhere. Under a program of gradual disarmament, it is, however, considerably more likely than under the rapid program that steps taken to counteract declining demand in the countries concerned will prevent any significant reduction in the demand for our exports.

It is evident that under both patterns of disarmament the cut-back in demand that is to be expected on an annual basis is considerably less than the normal annual growth in aggregate demand experienced in the post war period. The problem of aggregate demand arising from disarmament should therefore be thought of as a slowing down of the rate of expansion of demand rather than a decline in demand.

This does not mean, of course, that there would be no unemployment in the absence of compensating measures. The persistent unemployment of the last six years has been associated with a growth in demand that has been "too slow" in relation to the growth in the labour force. Moreover, if no steps were taken to counteract the effect of disarmament on aggregate demand, the loss of employment would be greater than our figures suggest, since there would be a "multiplier effect". The reduction in aggregate demand would not be confined to the reduction in defence expenditures but would include the reduced private expenditures of those no longer employed, directly or indirectly on defence, as well as the reduced expenditures of those whose employment and incomes are affected by this secondary reduction of private expenditures, and so on.

Measures to Maintain Aggregate Demand:

To prevent the development of such a spiral, compensating measures must be planned and implemented in step with the reduction of defence expenditures. Such reductions would promote spending by households and may stimulate some business expenditure for expansion of plant and equipment. In addition, an extended program of re-establishment grants and related benefits for those dismissed from the armed forces would serve the double purpose of stimulating demand for goods and services and facilitating the transition of former members of the armed forces to new occupations. Such a program might also be extended to civilian employees of the defence departments and workers in industries highly dependent on defence contracts, such as the aircraft industry. These programs were a major factor in preventing the spread of unemployment following the Second World War.

Current discussions of the "crisis in higher education" and "medicare" make it clear that there is considerable scope for the socially profitable expansion of government expenditures on education and health services, which would take up some of the slack of reduced defence expenditures. Planning in these fields would require further Provincial-Federal cooperation.

Following World War II, the problem of reconversion to civilian production was handled with very little unemployment, which was generally of very short duration. The "reconversion" task that would accompany disarmament under present circumstances is trivially small by comparison. Given a modicum of advance planning, the maintenance of aggregate demand should present no difficulty.

THE PROBLEM OF MOBILITY

If defence expenditures are replaced by other expenditures from public or private sources, both businessmen and labour will face problems of mobility. Business firms will have to find new markets for their output or to change their products. Some firms may have to change their location and some may be forced out of business. Members of the armed forces, some civil servants and some employees of private firms will have to find a new employer in a different "industry". In many cases they will have to change the type of work they do and to learn new skills. In many cases they may have to change their location. One may thus distinguish problems of industrial, occupational and regional mobility.

It should presumably be an object of government policy to ensure that such changes as are necessary take place with a minimum of friction and a minimum of loss to the persons concerned. One of the most difficult problems of policy is the extent to which compensating expenditures should be "tailored" to minimize the need for mobility.

It is evident that serious problems of mobility have already arisen from shifts in the direction of defence procurement. The termination of uranium contracts, the Avro Arrow cancellation and the recent reduction in shipbuilding programs have been instances of this trend. It is to be expected that problems of this kind will continue to arise, even in the absence of disarmament. It is reasonable to suppose, for example, that the increasing reliance on missiles will progressively reduce the military market for the aircraft industry.

A government seriously concerned with the possibility of disarmament would endeavour to obtain, well in advance, as good an impression as possible of the location and scope of the mobility problems that are likely to arise. This task requires information and facilities not readily accessible to the private investigator. The character and scope of the problems that will be met depend not only on the industrial and geographical distribution of the defence effort but also on the nature of the compensating measures that are envisaged.

A very rough indication of the industries, occupations and areas likely to experience problems of mobility may be obtained by looking for the industries, occupations and areas in which defence demand accounts for a very high percentage of output or employment. But even the relatively simple task of measuring the proportion of output or employment in each industry, occupation, and area that is attributable to defence is beyond our present resources, since it again requires reliable information on inter-industry transactions and this, as has been pointed out, constitutes a major gap in our statistical equipment. We shall therefore be restricted in the present paper to a rough analysis of the *direct* impact of the defence effort and shall have to ignore the indirect impact on the subcontractors and the chain of suppliers who receive a portion of each defence dollar.

The Regional Distribution of Defence Employment:

Some information on the regional distribution of the defence effort is now available to the writer from three sources.

- (a) A distribution of employees of the Department of National Defence by Census Division, kindly made available by the department.
- (b) A distribution of defence contracts by region which the Department of Defence Production has been good enough to supply.
- (c) Details of the regional distribution of the labour force available from the 1961 Census.

The Census is the only source that permits the pooling of information on the distribution of armed forces, civilian defence department employees, and industrial employees, without a great deal of estimation. It is also the only source that provides industrial detail for small as well as large cities. Consequently, our analysis in this paper is based mainly on the Census.

The disadvantage of the Census is that it does not permit the explicit segregation of defence from non defence industrial employment. Our analysis is therefore based on those industries (as classified by the Dominion Bureau of Statistics) in which defence orders account for a high proportion of total output.

These industries are:

Industry	Defence expenditure as percentage of value of shipments ^a	Total Labour Force ^b
	1960	1961
Defence Departments (incl. armed forces).....		173.1
Aircraft and parts.....	89	29.5
Shipbuilding and Repair.....	21	16.3
Electronics (Communications Equipment).....	41	24.2
Ammunition and Explosives.....	25	4.7
Instruments.....	19	12.4

^a Estimates by Department of National Defence.

^b 1961 Census.

Table 6 shows all incorporated centres of 10,000 inhabitants or more in which there are at least 200 employees in one of the industries listed above (which will be referred to as "defence-sensitive industries") and in which these industries together account for 6 per cent or more of the labour force. These are the centres which may be said to have the greatest likelihood of experiencing problems of regional mobility in the event of disarmament. Table 7 contains the same information for those cities where defence-sensitive employment is high in an absolute sense, with a figure of 2,000 employees as the cut-off point. The cities where the problem of regional mobility is both likely to occur and to be serious in its extent are those that appear on both tables. Halifax and Victoria stand out by their high ranking on both lists. Ottawa and Quebec present less extreme cases. Both lists also include Oromocto, the future of which is entirely in the hands of the Defence Department. Montreal would be on both lists if the arbitrary cut-off percentage for table 6 had been placed at 5 per cent instead of 6 per cent.

Our analysis thus suggests that there are only a few localities where the problem of regional mobility arising from disarmament is likely to be serious.

Our rough estimates are a poor substitute for an accurate and up-to-date picture of the local and regional impact of defence, which could be produced from the statistical and accounting records now available within the government. In view of the need to prepare for possible disarmament, the establishment of a system for producing this information should be given high priority.

In the event of disarmament cases will arise in which the government will have to decide whether it is worthwhile to design compensating expenditures specifically to take up the slack in a particular city or region. Indeed such problems have already arisen. The most likely candidates for the problems of mobility are, as we have seen, Halifax and Victoria, and in both of these, shipbuilding is of major importance. Many observers believe that some of the naval shipbuilding programmes in the last few years have been motivated in part by a desire to support local shipyard employment. The recent cancellation of programmes has been followed by lobbying for business on the part of the shipyards and local authorities and proposals for subsidized construction of a merchant fleet.

TABLE 6
TOWNS AND CITIES WITH A HIGH CONCENTRATION OF
DEFENCE-SENSITIVE EMPLOYMENT, 1961.

Area	Labour Force		(2) as percentage of (1) (3)	Main Defence Industry (4)
	Total (1)	Defence- Sensitive Industries (2)		
	(000)		%	
Oromocto, N.B.....	4.3	3.8	89	D.
Trenton, Ont.....	4.8	1.5	32	D.
Halifax, N.S.*.....	73.0	20.0	27	D.S.A.
Victoria, B.C.*.....	55.4	11.0	20	D.S.
St. Jean, Que.....	10.0	1.7	17	D.
Belleville, Ont.....	11.6	1.7	15	C.D.
Portage-la-Prairie, Man.....	4.1	0.6	15	D.
Barrie, Ont.....	8.2	1.1	14	D.
Sorel, Que.....	5.5	0.8	14	S.
Georgetown, Ont.....	3.6	0.5	13	A.C.
Ottawa, Ont.*.....	167.7	20.0	12	D.
Cobourg, Ont.....	3.7	0.5	12	D.
Pembroke, Ont.....	6.3	0.7	11	D.
Kingston, Ont.....	20.9	1.8	9	D.
Fredericton, N.B.....	8.1	0.7	9	D.
Brockville, Ont.....	7.2	0.6	9	C.
Brampton, Ont.....	7.5	0.5	7	A.
Quebec, Que.*.....	126.4	7.2	6	D.S.E.

SOURCE: D.B.S., 1961 Census, Bulletins 3.2-2, 3, 4.

D = Defence Departments; A = Aircraft and Parts; S = Shipbuilding and Repair; C = Communications Equipment; E = Explosives; I = Scientific Instruments.

* Metropolitan Area.

Sensible decisions on matters of this kind must involve some attempt to weigh the greater economic efficiency of expenditures that are not subject to a regional constraint against the costs and sacrifices involved in forcing people to move and in a local decline of population. In this context it is relevant to note that a great deal of the employment in each city serves the local market for goods and services, so that if disarmament leads to a loss of population,

TABLE 7

TOWNS AND CITIES WITH OVER 2,000 MEMBERS OF THE
LABOUR FORCE IN DEFENCE-SENSITIVE INDUSTRIES, 1961.

Area	Labour Force		(2) as percentage of (1) (3)	Main Defence Industry (4)
	Total (1)	Defence- Sensitive Industries (2)		
	(000)		%	
Montreal, Que. ^a	807.0	39.5	5	A.C.D.
Toronto, Ont. ^a	789.7	21.7	3	A.I.C.D.
Halifax, N.S. ^a	73.0	20.0	27	D.S.A.
Ottawa, Ont. ^a	167.7	20.0	12	D.
Victoria, B.C. ^a	55.4	11.0	20	D.S.
Quebec, Que. ^a	126.4	7.2	6	D.S.E.
Winnipeg, Man. ^a	194.3	7.0	4	D.A.
Vancouver, B.C. ^a	294.8	5.7	2	D.S.C.
Edmonton, Alta. ^a	131.6	5.2	4	D.A.
Calgary, Alta. ^a	109.3	5.0	5	D.
London, Ont. ^a	73.8	4.0	5	D.C.
Oromocto, N.B.....	4.3	3.8	89	D.

NOTES AND SOURCES: see Table 6.

employment in industries serving local needs will be lost in addition to the loss of defence employment. The magnitude of this "multiplier effect" can be estimated from the information in the 1961 Census. Chart I shows the relation between "local" and "basic" employment for cities and towns of 10,000 or more inhabitants.¹ There is very little variation from a stable relation for large cities and Metropolitan Areas, but small cities show large deviations from the average relation. The chart suggests that the average relation is very close to one position in "local" employment for each member of the labour force in a "basic" industry. The best computed estimate of the average relation² is that for a one per cent decline in the labour force in "basic" industries, including defence, employment in "local" industries would decline by 0.98 per cent. Very roughly, and on the average, for every position lost through disarmament which is not replaced *locally* there would be an additional loss of one position in "local" industry. The relation may be very different from this average in a particular small town, and in order to be prepared for disarmament detailed case studies should be made for those localities where problems are likely to arise.

The costs and hardship imposed on those who must move to a new city to find work, should also be taken into account in deciding whether compensating expenditures should be tailored to protect the cities affected by disarmament. Up to a point no such hardship arises, because there is a normal movement of families between cities and regions. In evaluating the possible effects of disarmament in a given city it would therefore be important to know what proportion of those employed in defence-sensitive industries normally change their employment and place of residence each year. Unfortunately, very little

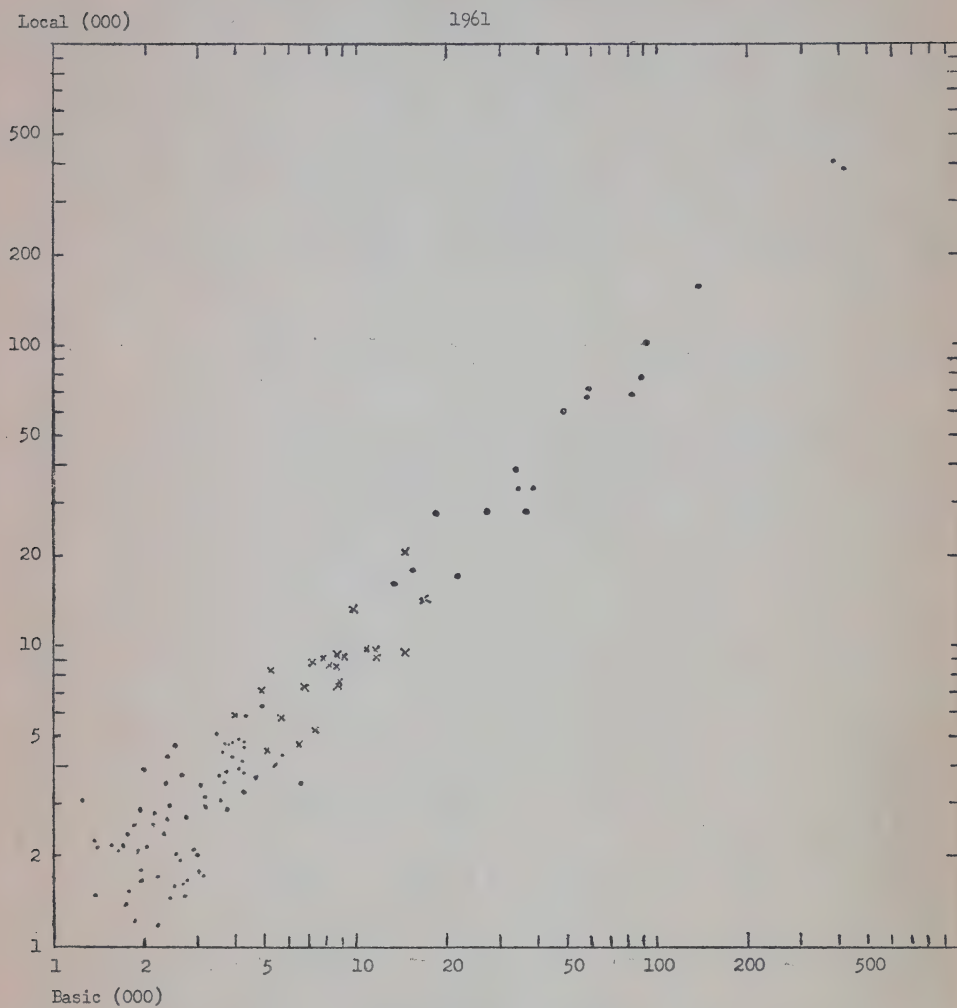
¹For the purpose of this investigation we have defined "local" employment as consisting of the following census industries and groups: dairy factories, bakeries, soft drink manufacturers, sash and door and planing mills, printing and publishing, construction, urban transit, taxi cabs, telephone, post office, utilities, retail trade, savings and credit institutions, insurance and real estate, schools, health and welfare services, religious organizations, recreational services, personal services, miscellaneous services, local administration.

"Basic" industries are those not dependent on the local market. This terminology is borrowed from the geographers.

²Based on regression analysis on the logarithms of "local" and "basic" employment.

CHART I

Labour Force in "Basic" and "Local" Industries
Cities, Towns and Metropolitan Areas of 10,000 or More.



statistical information of this type is at present available, so that special studies would have to be made. This question is one aspect of the general problem of labour mobility which is discussed more fully in a later section.

Occupational Concentration of Defence Expenditure:

Detailed information on employment by occupation is available from the 1961 Census. To determine how much of the employment in each occupation is dependent on defence would, as in the case of regions, require accurate information on inter-industry transactions, which is not at present available.

A rough idea of the occupations that are likely to be seriously affected by disarmament can, however, be gained by examining the occupational structure of the major defence-sensitive industries. Table 8 shows the occupations with the highest concentration of employment in the aircraft, shipbuilding, and communications equipment industries. Of the sixteen occupational groups shown, nine are in the metal working field and three are in the professional field, including the very important group of professional engineers. Apart from members of the armed forces, it is members of these groups who run the greatest risk of having to acquire new skills in the event of disarmament. Such and private demand that take the place of defence expenditures will utilize the same skills. The list of occupations suggests that the type of expenditure most likely to utilize the existing skills would be expenditure on machinery and equipment and durable consumer goods, as well as research and development.

For the individual faced with the need to change his occupation, the psychological and financial sacrifice is greatest if the obsolete occupation is a highly skilled one involving a substantial investment in training. This is clearly the case for professional engineers. Information on the training requirements of various crafts is not readily available, but four of the occupations that are listed in Table 8 are analyzed in a Department of Labour publication (Ref. (7)), from which the following results are summarized:

PERCENTAGE OF THOSE IN THE OCCUPATION WITH FORMAL TRAINING

Occupation	Place of Training		
	Canada	Foreign	Both
	%	%	%
Tool and Die Makers.....	88	91	86
Sheet Metal Workers.....	56	90	64
Senior Draughtsmen.....	99	100	99
Electronic Technicians.....	97	98	97

MEDIAN LENGTH OF FORMAL TRAINING IN YEARS

(For those with Formal Training)

Occupation	Place of Training		
	Canada	Foreign	Both
Tool and Die Makers.....	4 or more	4 or more	4 or more
Sheet Metal Workers.....	less than 1	4 or more	2 - 4
Senior Draughtsmen.....	4 or more	4 or more	4 or more
Electronic Technicians.....	2 - 4	2 - 4	2 - 4

These findings are the result of a sample survey involving interviews. Two of the occupations shown involve, on the average, over two years of formal training and two involve at least four years. It would be very helpful to have corresponding information on other occupations.

TABLE 8
OCCUPATIONS WITH A HIGH CONCENTRATION OF DEFENCE-SENSITIVE
EMPLOYMENT^a

Occupation	Labour Force		(2) as percentage of (1) (3)	Main Defence Industry (4)
	Total (1)	Defence Industries (2)		
	(000)		%	
Fitters and Assemblers, Electrical and Electronic Equipment.....	8.4	4.9	59	C.
Mechanics and Repairmen, Aircraft....	6.8	2.9	43	A.
Riveters and Rivet Heaters.....	1.4	0.5	36	A.S.
Inspectors, Examiners, Gaugers, n.e.s. —Metal.....	14.6	3.1	21	A.C.
Boilermakers, Platers, and Structural Metal Workers.....	8.5	1.7	20	S.
Patternmakers, (except paper).....	2.0	0.3	17	A.S.
Fitters and Assemblers n.e.s.—Metal...	17.6	2.8	16	A.
Toolmakers, Die makers.....	10.6	1.2	11	A.C.
Machinists and Machine Tool Setters..	34.6	3.2	9	A.S.C.
Sheet Metal Workers.....	17.1	1.4	8	A.S.C.
Science and Engineering Technicians, n.e.s.....	39.8	3.4	8	C.A.
Welders and Flame Cutters.....	38.7	3.0	8	S.A.C.
Professional Engineers.....	43.1	3.0	7	A.C.
Polishers and Buffers,—Metal.....	2.8	0.2	7	A.
Metalworking Machine Operators, n.e.s.	28.2	1.8	6	A.S.
Draughtsmen.....	20.6	1.3	6	A.S.C.

^aAircraft, Shipbuilding, and Communications Equipment.

n.e.s.—not elsewhere specified.

A = Aircraft

S = Shipbuilding

C = Communications Equipment

The Mobility of Labour:

The difficulties of adjustment that will accompany disarmament will be reduced to the extent that there is a high level of voluntary mobility of labour. What is mainly relevant here is mobility with respect to industry, occupation, or residence, and not moves from one employer to another within the same industry and occupation. Unfortunately, "turnover rates", for which extensive statistics exist include the latter type of move. They are therefore not useful for our purpose.

Information on the extent of voluntary mobility and its determinants is very inadequate, and a great deal more should be known in order to minimize the difficulties connected with disarmament. Some relevant conclusions can, however, be drawn from presently available sources.

It is generally believed that voluntary mobility is high when there is little unemployment and aggregate demand is high. A study by Greenway and Wheatley (Ref. (6), p. 1) confirms this hypothesis for the Canadian economy in the fifties. The analysis is based on a sample of annual unemployment insurance book renewals and measures mobility by the percentage of renewals that record a change in industry, area, or occupation from the preceding year. Mobility is measured only for those with a job at successive renewal dates and is thus a fairly good index of voluntary mobility. The rates are very high, and fell as unemployment increased, from 54 per cent in 1957 to 41 per cent in 1959. (Ref. (6), p. 5).

A little under one half of these job changes involved a change in industry. Thus between one fifth and one quarter of those with jobs at successive renewal dates changed their industry of employment during the year. These high rates suggest that if turnover in defence-sensitive industries is not abnormally low, substantial annual cut-backs in their output could take place without layoffs in excess of normal voluntary turnover, by halting the flow of new entrants into these industries. Of course, in the absence of detailed studies no firm conclusion on this matter is possible.

Occupational mobility was considerably higher than regional mobility. The proportion of renewals involving a change in both industry and occupation fell from 16 per cent in 1957 to 10 per cent in 1959 while the proportion of renewals involving a change in both industry and region ("local office area") fell from 6 per cent in 1957 to 4 per cent in 1959 (computed from Ref. (6), p. 5). The *relatively* low level of regional mobility suggests that *on the average* people are more easily induced to change their occupation than their place of residence. This finding tends to support a policy of providing job opportunities and retraining at the local level but it cannot take the place of a more concrete weighing of benefits and costs.

Mobility and Government Policy:

The problems of mobility generated by disarmament will not be different in essence from those receiving a great deal of attention at present. There is a widespread belief that "automation" is rapidly changing the skills required in the labour force, and that a great deal of present unemployment is due to the fact that workers do not have the right skills and hence cannot move to the jobs that are available as their old positions are rendered obsolete by technological change. While few economists would share the belief that a major part of present unemployment can be explained in this way, all would agree that it is highly desirable to facilitate the smooth flow of labour between occupations, industries, and regions. One may therefore ask whether disarmament introduces any new special factors into the discussion of mobility; are there any measures which would be desirable in the event of disarmament but could not be recommended in its absence.

An important difference between mobility problems due to disarmament and those due to automation is that disarmament involves a discretionary step of the federal government. One consequence of this is that these mobility problems will enter into the political considerations affecting disarmament. A second consequence already evident, is that in the event of disarmament there will be political pressures in favour of compensating expenditures which are tailored to reduce the mobility problem. A third consequence relates to the controversial question of the degree to which the Federal Government should be responsible for promoting labour mobility and for shifting the costs and sacrifices occasioned by imperfect mobility from the shoulders of the employees concerned. In the case of disarmament there is likely to be more general agreement that the Federal Government should accept a major share of the responsibility.

Our further discussion will be based on the view that the Federal Government should accept full responsibility for the costs of any measures to deal with mobility problems, but that responsibility for planning and action must be shared by junior governments, employers, and labour.

Problems of mobility will be minimised if disarmament is very gradual. It is unlikely, however that even the twelve year disarmament scheme we have outlined would be gradual enough to permit all changes to be accomplished, through normal voluntary mobility, retirements, and redirection of the flow of new entrants. Some defence workers and members of the armed forces will be compelled by disarmament to seek employment in new occupations and

regions. One of the most effective steps the federal government can take to facilitate these movements is to maintain aggregate demand for goods and services at a high level. This is confirmed by the experience of World War II and of the post-war period of reconversion, and by the statistical findings on mobility discussed above. If the problem of aggregate demand is solved, the problem of mobility is reduced to a minimum.

Next to the maintenance of aggregate demand a most important requirement is advance planning on the part of business firms and regions that will be affected by disarmament. The types of non-defence goods that can employ the labour and facilities currently devoted to defence projects should be kept under continuous review, the markets for them should be studied and developed. This task requires the detailed knowledge that only the firms and local authorities concerned can have, and therefore cannot be left to the Federal Government. At present the Department of Defence Production encourages research and development work by business firms designed to enable them to compete successfully for Canadian and U.C. defence contracts. Preparation for disarmament requires that there should be similar incentives for research on the civilian alternatives to defence work.

Planning of this kind will reduce the need for actual shifts of labour between firms and regions. These shifts can be further reduced, as we have indicated, by directing government expenditure in nondefence areas to the industries and firms affected by reduced defence demand. The shipbuilding and aircraft industries are obvious candidates for treatment of this kind. The political pressure to use public funds to subsidize "obsolete" industries is always great, and earlier examples can be found in federal policies relating to gold mining, agriculture, and fisheries.

Taking into account the costs and sacrifices involved in the movement of labour and capital between industries and regions, there is certainly a case for some degree of adjustment of public expenditures to the existing disposition of resources. There should however be machinery for making decisions in this area that are based on a full exploration of alternatives and a careful weighing of costs and benefits. Many of these are intangible and cannot be accurately measured, but a sensible policy requires that they should be considered in a systematic way, so that decisions are not uncoordinated responses to special pressures and problems.

The majority of those who will be forced to change their employment and perhaps their location in the event of disarmament will be members of the armed forces and civilian employees of the Department of National Defence. A very rapid transfer of personnel out of the armed forces was greatly facilitated at the end of the last war by the system of war service gratuities, re-establishment, credits, and various allowances for veterans. A system of benefits of this kind, extended to civilian employees of the defence departments, would do a great deal to reduce the mobility problems of disarmament.

The mobility of employees of private industry is at present assisted by a variety of Federal and Provincial programs including unemployment insurance and the National Employment Service, the technical and vocational training programs, and a newly established Manpower Consultative Service. Under the latter program financial incentives are to be provided for planning and research by employers and unions in situations where a reduction of employment opportunities is foreseen. All these programs will help to alleviate the difficulties resulting from disarmament, but it is arguable that they are not adequate in scope even for the mobility problems we face now. In particular there does not seem to be adequate provision for relieving discharged employees of the costs involved in moving to a new area, and for supporting discharged employees and their families during retraining.

Research and Development:

In Canada as in other countries a very high proportion of scientific research and development is financed from defence funds. This applies not only to work carried out by the Defence Research Board and other government agencies but also to the research undertaken by private business and non-profit institutions. It is most unlikely that in the event of substantial disarmament the reduction in defence-financed research would be compensated by an expansion of research financed by private industry. Disarmament will therefore call for a reconsideration of government policy with regard to the financing and organization of scientific research and development with "peaceful" applications.

Conclusion:

The economic problems arising from disarmament would be far less severe than those solved successfully at the end of the war. They can be kept to minimum proportions by well known devices that have been amply discussed in recent economic literature. However, our lack of success in maintaining a high level of employment from 1957 to 1963 points to the limitations imposed by the political and constitutional environment in which economic policies must be implemented.

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DISARMAMENT AND ARMS CONTROL

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CONTENTS

- I. Basic Concepts.
- II. Areas of Controversy.
- III. General and Complete Disarmament.
- IV. Local and Partial Measures.
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I—BASIC CONCEPTS

Disarmament may be defined as the reduction or abolition of armaments or armed forces. It may be:

- (a) unilateral or multilateral. That is to say, acts of disarmament may be carried out irrespective of undertakings by other states to do the same; or they may be made conditional upon them;
- (b) comprehensive or partial. In order words, disarmament may involve reductions in *all* categories of armaments and armed forces; or only in some such categories;
- (c) general or local. Disarmament may involve all militarily significant states; or it may be confined to the countries of a particular region;
- (d) drastic or modest. The reduction and abolition involved, that is to say, may have the effect of greatly weakening states in their military capacity or even of rendering them militarily impotent—as in proposals for “total disarmament” or (what amounts to the same thing) “general and complete disarmament”; or it may affect their military capacity only slightly. It should be noted that disarmament which is general and comprehensive in the senses noted above, is not necessarily drastic: it is conceivable that all militarily significant states might undertake measures of disarmament that would weaken them in all categories of their armaments and armed forces, but not weaken them very much. “General and comprehensive disarmament”, therefore, is not identical with “general and complete disarmament”, a confusion which is fostered by the use of the initials G.C.D.

Arms control may be defined as restraint exercised upon armaments policy, whether in respect of the quantity of armaments and armed forces possessed by a state, their character, deployment or use. In its broadest sense arms control embraces all those kinds of restraint in military policy that are practised or might come to be practised by states that are in conflict with one another but wish to keep their conflict within bounds. Arms control arrangements are relevant only to situations of international conflict; it is only where tension or hostility exists, as it does today between the Soviet Union and the Western

alliance, that the dangers are present which arms control is concerned to remedy. On the other hand, it is also a presupposition of all thinking about arms control that in the situations of conflict to which arms control remedies are to be applied the parties do in fact wish to preserve limits; that the Soviet Union and the Western powers, while they wish to exploit the military power available to them in the conflict in which they are engaged, at the same time recognise common interests in avoiding war and in preserving limitations in it if it occurs.

In the senses in which the terms are used here, the relationship between disarmament and arms control is that the latter includes the former. However, arms control also includes a number of other kinds of restraint in military policy in addition to that involved in disarmament:

- (a) In addition to international agreements which impose disarmament it includes agreements which do not require reduction or abolition of armaments but impose restrictions of different kinds. They may restrict, for example, the test explosion of weapons, as in the case of the limited nuclear test ban treaty; the deployment of weapons in certain areas, as in the use of proposals for regional denuclearised zones; the future increase of armaments, as in the case of proposals for a "cut-off" in the production of nuclear explosives or of missiles; the economic resources devoted to armaments, as in the case of proposals for the limitation of defence budgets; or the use that is made of armaments in war, as in the case of the Geneva Protocol of 1925 prohibiting the use of poison gas.
- (b) In addition to agreements contained in a formal international treaty it includes informal or tacit agreements to practice restraint in military policy. The clearest example of an agreement of this sort was the informal agreement not to test nuclear weapons while the negotiation of a test ban treaty was in progress, observed by the United States, Great Britain and the Soviet Union from 1958 to 1961. Many other areas of great power military policy are also sometimes said to be the subject of tacit agreements: the United States and the Soviet Union, for example, are said not to allow their military expenditures to rise above a certain level, to limit the resources they devote to destabilising aspects of the arms race such as the anti-missile missile and civil defence, and to respect the inviolability of one another's most vital spheres of influence, in deference to a mutual awareness that if either of them disregarded the prohibition in question the other would be bound to follow suit and the competition between them would take a new turn dangerous to them both. It is difficult to establish whether the above are genuine examples of tacit agreements or not. Where, as in the case of the restraint observed in military expenditures, neither side actually makes public reference to any sort of understanding with the adversary, nor even to the danger of provoking him into stepping up the competition to an unacceptable level, it cannot be positively demonstrated that any such understanding exists. Moreover, the restraint displayed on both sides can perhaps be adequately explained by the domestic pressures on each country limiting the resources it is prepared to channel into the arms race. On the other hand the area of tacit arms agreements is undoubtedly of great importance. The area of great power military relations is in fact for the most part unregulated by formal agreements; and in so far as understandings do exist to reduce the risk of war and limit it if it occurs, these are chiefly of a tacit or informal sort. The sharpness

of the United States' reaction to the discovery in September 1962 that the Soviet Union was establishing strategic missiles in Cuba was perhaps due to a feeling that a tacit understanding had been disregarded.

- (c) In addition to international agreements, formal and tacit, the concept of arms control embraces restraint that is unilateral. There are certain actions in the field of military policy which each side may take without waiting for the agreement of the other, but which nevertheless promote interests that are common to them both. The clearest examples are the actions taken by the United States to reduce the danger of war arising from technical accident or from a failure on her part to ensure adequate control of her own forces and weapons. A great many other areas of United States military policy at the present time, however, may be said to constitute unilateral arms control in this sense. Thus the acquisition by the United States of nuclear retaliatory forces that are invulnerable has as at least one of its purposes that of advancing an interest shared with the Soviet Union in replacing weapons which must be fired instantaneously upon receipt of warning of an impending attack, in order to be used in retaliation, with forces that can survive any attack and therefore do not confront the political decision-maker with the need to make a rapid and possibly erroneous decision. The United States government's provision of a strong conventional capability in Western Europe has as one of its purposes that of reducing the danger of a nuclear war in Europe arising from an expansion of a conventional conflict unintended by either side. Again, the resistance offered by the United States to the spread of national nuclear forces within Nato, and her championship in its place of an integrated alliance nuclear force, has as one of its declared purposes the promotion of an interest shared with the Soviet Union in arresting the spread of nuclear weapons to non-nuclear countries in general and to Western Germany in particular. It is one of the difficulties of the concept of unilateral arms control that actions of the sort that have been decried, although they have arms control as part of their purpose, have other possible purposes also. Thus the United States, by improving her command and control arrangements, by making her retaliatory forces invulnerable, by equipping herself with a strong conventional capability in Europe and by resisting the spread of nuclear weapons in Nato, also places herself in a stronger position to advance perceived interests that are not shared with the Soviet Union but are exclusively her own. The ambiguity of purpose and intent surrounding all acts of military policy means that it is difficult to have the adversary recognise that the actions performed in the West are directed towards interests held in common, even where this is in fact the case.

II—AREAS OF CONTROVERSY

Disarmament and arms control are the subject of a number of important theoretical controversies, which it is helpful to take into account before proceeding to consider present problems. No attempt is made here to settle these controversies, nor even to investigate them fully. It is intended rather to state some of the main issues in each area of controversy and to present the arguments used on each side. The matters at issue are the desirability in principle of disarmament and arms control; their political practicability at the present time;

and the methods most appropriate for advancing them—the direct vs. the indirect approach; the unilateral vs. the multilateral approach; the comprehensive vs. the partial approach; and the drastic vs. the modest approach.

The Desirability of Disarmament and Arms Control

The objective towards which disarmament and arms control are directed is that of increased international security; that is to say, they are concerned to make war less likely or less frightful if it occurs. This objective itself is not in dispute among men of goodwill; but it is a matter of legitimate disagreement as to whether or not disarmament and arms control are the best means of advancing it. The idea of disarmament theory, in particular, that international security is best advanced by abolishing military force or by reducing it to the lowest possible level, conflicts with two other doctrines about international security which are widely held at the present time. One is the idea of the balance of power or balance of terror: the doctrine that international security is best advanced by preserving an equilibrium in military force among the major powers, rather than by attempting to abolish it or reduce it to the lowest level. The other is the idea of a world government or world police force: the notion that security is best promoted not by eliminating military force but by depriving sovereign states of it and concentrating it in the hands of a central authority.

According to the advocates of a balance of military power, disarmament represents an inadequate approach to the problem of international security, for two reasons. In the first place, it is held, disarmament in the sense of the total abolition of all military force is an unattainable objective; while it is conceivable that the armaments and armed forces available to states may be rendered few in number and primitive in kind, it is not possible to bring about a world in which states, having no physical capacity for violence, cannot make war even when they want to. In the second place, it is held, the best way to dispose of the military force that inevitably will exist in the world is not to reduce it to the lowest quantitative and qualitative level, for the military force that now exists is in fact a source of security rather than insecurity among nations, so long as no one state is able to place itself in a position of preponderance. Nuclear weapons, in particular, are thought to be an effective preservative of peace; and the balance of nuclear power between the Western alliance and the Soviet Union is thought to have about it a quality of permanent stalemate such as is proof against decisive upset by either side. The conclusion towards which the doctrine of the balance of power points is that disarmament, by removing the kinds and levels of military force upon which the peace of the world is said to have rested in the postwar world, would defeat its own purposes.

According to this doctrine international security is better served either by an attitude of *laissez-faire*—or abandonment of arms control in the relief that the arms race itself will preserve the nuclear stalemate and hence the peace; or by a pursuit of measures of arms control that would be designed not so much to abolish or reduce military force as to stabilise the balance of power, and in particular the nuclear stalemate. Those who have embraced this latter conclusion have been led to distinguish those departments of the arms race that threaten to undermine the nuclear stalemate (for example, the development of the capacity to cripple the opponent's nuclear retaliatory forces in a first strike; and the attempt, through measures of civil defence or of military defence, such as the anti-missile missile programme, to provide effective defence against nuclear attack) from those departments of it which have the effect of further confirming or strengthening the nuclear stalemate (for example, the development of invulnerable retaliatory forces). They have argued that it should be the object of arms control to prohibit the former, "de-stabilising" tendencies, while tolerating or even encouraging the latter "stabilising" tendencies.

The starting-point of many advocates of a world government or world police force is also that disarmament in the sense of the complete elimination of military force is unattainable; and that the objective of reducing armaments to the lowest quantitative and qualitative levels, while leaving them in the hands of sovereign states, is an unsatisfactory one. For these theorists, however, the solution of the problem of international security lies not in stabilising the balance of military force among states, but in removing military force from their control and placing it at the disposal of a central authority. Drastic general and comprehensive disarmament carried out in the absence of a strong central authority—such as is envisaged in the current Soviet plan for general and complete disarmament—would, according to these theorists, prove impossible to control: for states can be expected to observe the terms of a disarmament treaty only if there exists a superior authority to deter potential violators and deal effectively with actual ones. Moreover, on this view, quite apart from the question of the enforcement of the disarmament agreement, the situation resulting from the implementation of a plan such as the Soviet Union's would be that of a vacuum of power and hence of general anarchy. According to these theorists the requirements of security in international society as in domestic society are that the resort to violence should be made the legal monopoly of the community, and that the means of violence be concentrated in the hands of its central organs.

There are certain *ripistes* which the advocate of disarmament pure and simple may make to these two positions. As against the advocate of the stabilisation of the balance of power, he may object that in the nuclear age the security promised by such a system falls short of the requirements for the survival of civilised life in the long run. The maintenance in the past of an armed balance of power may be said to have introduced an element of order into international relations, and to have contributed to the avoidance of particular wars; but it also preserved a situation in which war constantly could, and sometimes did, take place; and the question, so it is maintained, is whether in the context of present-day military technology a system of this sort can remain permanently acceptable. As against the advocate of a world police force it may be argued upon behalf of general disarmament that a world in which modern weapons are not abolished but merely placed at the disposal of a single authority is one in which the danger that these weapons will be used in anger is still present.

The advocate of disarmament may, indeed, maintain that there are certain dangers to international security to which measures of actual reduction and abolition of armaments and armed forces appear the only remedy. The existence of vast military establishments, he may argue, itself constitutes a cause of international tension and conflict, which might be reduced if armaments and armed forces or the resources devoted to them were to be cut down in size as the result of international agreements. Moreover, he may also argue, there are certain kinds of armaments which by their very nature make war more likely or more frightful if it occurs: measures of abolition of these categories—the missile, which magnifies the speed of war; the nuclear explosive which magnifies its destructiveness—might in themselves effect an improvement in security against war, even if such measures of abolition may be undone by subsequent rearmament and their effect were to have proved merely temporary.

It is not purposed here to attempt to resolve the controversies that divide the idea of security through disarmament from that of security through the balance of power on the one hand, and that of security through the concentration of power on the other. It may be observed, however, that the United States and the Soviet Union, while both embracing the idea of peace through disarmament as the official objective of their negotiations, have gone some distance towards qualifying the pure principle of disarmament out of regard

for the other two considerations. In the case of the principle of security through the balance of power, both recognised it when in their Joint Statement of Agreed Principles for Disarmament Negotiations of 20th September 1961 they laid down that: "All measures of general and complete disarmament should be balanced so that at no stage of the implementation of the treaty could any state or group of states gain military advantage and that security is ensured equally for all." This principle gained further recognition when in 1962 the Soviet Union modified its proposal for the destruction of all nuclear delivery vehicles in Stage I of the process of disarmament to allow of the retention of a limited number of intercontinental missiles by themselves and the United States until the end of Stage II. In doing so the Soviet union accepted the United States' doctrine of 'transitional deterrence', that is to say, the notion of the preservation of the nuclear stalemate to provide security during the disarmament process. As regards the doctrine of security through the concentration of power, the United States alone has sought to take account of this principle in its general and complete disarmament plans: the idea of a Peace-keeping force, whose military strength is to be augmented as that of sovereign states is reduced, vague and ambiguous though it is, suggests that the United States is feeling its way towards espousing the objective of world government.

The Political Practicability of Disarmament and Arms Control

However desirable disarmament and arms control may be, they cannot come about unless the major powers recognise them to be desirable and earnestly pursue them. Every major power is officially in favour of disarmament and arms control; even France and China, who alone among the major powers refused to sign the limited nuclear test ban treaty, make alternative arms control proposals of their own. But this not to say that every state that takes part in arms control negotiations is engaged in the earnest pursuit of arms control.

Disarmament and arms control negotiations are in fact susceptible of three sorts of interpretation. First, there is the view that they are a form of strategic manoeuvre: an attempt, on the part of each state to improve its relative military position by hoodwinking its opponents into accepting proposals that are injurious to their interests. Thus it is pointed out that the current Soviet proposals include the abolition of foreign military bases in the first stage of general and complete disarmament, a proposal which would weaken the United States and her allies very much more than it would the Soviet Union. The United States, it is remarked, places great emphasis on adequate inspection of the Soviet Union, a policy which reflects the fact that in the field of military intelligence the United States has more to gain than the Soviet Union from a lowering of barriers to the passage of information. And it is noticed that the proposal upon which France at present places most emphasis is for the abolition of delivery vehicles for nuclear weapons; since France at present possesses no effective means of delivering nuclear weapons, whereas the other three nuclear powers do, this proposal would change the distribution of power in France's favour. On this view of arms control negotiations, each state does seriously pursue an agreement, but only one that would confer a unilateral advantage upon itself—an agreement, that is to say, which is unlikely to prove acceptable to other states, unless they are mistaken as to what their true strategic interests are.

Secondly, there is the view that arms control negotiations are an exercise in propaganda or public relations. On this view each participant in the negoti-

ations is concerned to demonstrate its own greater willingness to disarm, whilst at the same time inserting what has been called a "joker" into its proposals, to ensure their inacceptability to the other side. If this view of arms control negotiations is correct, an agreement is never a serious possibility; if one side calls the other's bluff by accepting its proposals, the latter side will recoil in confusion and change its position, as the United States did when the Soviet apparently accepted the Anglo-French plan in May, 1955.

Thirdly, there is the view that arms control negotiations are in fact what they purport to be: a process of diplomacy or bargaining and a search for appropriate methods or techniques, in which the parties seek to discover what common interests they may have in military restraints, and how these interests may best be advanced.

Clearly, it is only when arms control negotiations approximate to this third view, when the parties are engaged in a genuine exploration of the common ground between them, that the conditions are present for the conclusion of arms control agreements. Are these conditions present now? It is not open to serious doubt that the major powers are in earnest in the attempt to reach agreement in *some* areas of arms control. Indeed, a number of modest agreements already exist. As noted above, the arms race is moderated by a series of informal agreements. And in the sphere of formal agreements, there exist the Antarctica Treaty of 1959, the Hot Lines Agreement of 1963, and the limited nuclear test ban treaty of the same year. It is, however, a matter of controversy as to whether or not the major powers are seriously pursuing an agreement for general and complete disarmament.

The Soviet Union, it may be argued, displays such hostility and suspicion towards the non-Communist world in all its behavior outside the disarmament conference chamber, that it is difficult to credit it with any serious expectation that one day the socialist lamb will lie down beside the capitalist wolf. Quite apart from its distrust of Western intentions towards the Communist world, the Soviet Union is dependent upon armed force for the maintenance of its present position in eastern Europe, and for the further extension of the communist system. The impression that the chief Soviet objective in negotiations for general and complete disarmament is to score propaganda victories at the expense of the Western powers is heightened by the fact that Soviet general and complete disarmament plans are of a quite flippant character, betraying little sign of a serious attempt to come to grips with the problems involved.

In the case of the United States, especially in recent years, the plans that have been put forward for general and complete disarmament quite clearly reflect detailed consideration of the subject. It can be shown, moreover, that many people in the United States, not least those responsible for the conduct of arms control negotiations, would be prepared to accept complete disarmament, if adequate guarantees of security were to be forthcoming. As in the case of the Soviet Union, however, United States policy outside the disarmament conference chamber does not seem to display any real expectation that measures of drastic disarmament are likely to come about; defence policy and economic policy are conducted as if the United States military establishment were a more or less permanent fixture of national life; the chief pre-occupations of United States planners and policymakers seem to be with a future radically different from that assumed in plans for general and complete disarmament.

Those who contend that negotiations for general and complete disarmament are chiefly a strategic manoeuvre or a public relations exercise on both sides, sometimes conclude that the Western powers should cease to participate in talks of this kind, and seek to restrict negotiations to those other areas of arms

control in which the two sides really believe themselves to have an interest. There is, however, a contrary argument. This is that even if general and complete disarmament should at present appear politically impracticable, negotiations directed towards it should be persisted in, because they are themselves a possible means of making it more practicable. If the major powers now have only a tentative and exploratory commitment to the idea of general and complete disarmament, the continuation of a conversation among them on this subject may help to harden this commitment, to mobilize those forces in the various countries involved that are in favour of radical changes in the present position. It may also assist the development of a common doctrine as to how general and complete disarmament may be carried out, and as to how to deal with the various new problems to which the completion of that process would give rise. In the present pronouncements made by the major powers on general and complete disarmament there is perhaps an element of deception, including self-deception, as to the real difficulties of the problem: a failure of governments to be entirely honest, either with themselves or with their respective publics, as to the unreality of the plans on which the light of publicity is focussed. On the other hand the distinction between illusion and reality is often a very fine one; illusions become realities, if sufficient people believe them; and so the case for continuing to talk as if general and complete disarmament were practicable might still be a strong one even if a static view of the matter suggested that it were not.

The Direct vs. The Indirect Approach

Given that disarmament and arms control are desirable from the point of view of international security, and that in certain forms at least they are sufficiently sought by the major powers to be politically practicable, the question arises how they may best be achieved.

One view of the problem is that states are not locked in political conflict because they are armed, but on the contrary are armed because they find themselves politically divided; that while they remain politically divided, they cannot be expected to accept restrictions on their military policies, whereas once the political divisions among them are removed, disarmament would follow more or less automatically. Those who take this view consider that the "direct approach" to arms control, that of holding conversations on disarmament and arms control itself, is doomed to failure; and that instead, efforts should be concentrated upon the "indirect approach", the attempt to settle the political disputes from which the arms race arises. The proper approach to disarmament, on this view, is by way of a solution of the German problem, the problem of Berlin and other political issues.

Advocates of the "direct approach", on the other hand, take as their starting point the fact that armaments, as well as being the result of international tensions, are themselves the cause of further tensions; it is the military power that is now available to modern states that causes fear and distrust among them, and not merely their conflicting ambitions. Disarmament, on this view, can only be achieved if the major states confront the problem of disarmament itself; moreover, once this is solved, political tensions themselves are likely to subside. As the advocates of the indirect approach maintain, the United States and Soviet Union must remain reluctant to accept restraint on their military policies, let alone to abandon their armaments altogether, while they are locked in a series of political conflicts. On the other hand, it may be said on behalf of the direct approach that it is precisely because these states are divided by serious political disputes that the search for arms control agreements between them is necessary and relevant. Where the level of political tension among states is low and they do not make military preparations against one another, as in the case of relations now

existing among the United States, Great Britain and Canada, arms control arrangements can serve no purpose. Moreover, if disarmament and arms control negotiations between the Western alliance and the Soviet bloc were to be postponed until after the political disputes dividing them had been settled, this would mean living indefinitely with the dangers of the arms race, without doing anything to diminish them. Indeed, since political conflict is the normal condition of international relations, such an approach to disarmament and arms control suggests that the latter are enterprises to be undertaken in some other world, not in this one. The proper concern of arms control, it may be argued, is to identify those military restraints which are consistent with the perceived interests of both sides, even while the political conflicts among them continue.

The Unilateral vs. The Multilateral Approach

Given that even while political tensions persist in the world the direct attempt to advance disarmament and arms control may be of some value, another important disagreement of method which arises is that between advocates of unilateral and of multilateral action.

The basis of the multilateral approach is that states are more likely to practise restraint in their military policies if they are able to exact assurances from other states that they will do likewise. Thus, on this view, the major powers are at present most likely to disarm if they can arrive at agreement binding them all to disarm simultaneously. Such an agreement would facilitate the individual disarmament of states by providing not merely that all states would disarm, but that they would do so in such a way as to preserve the existing distribution of military power in the world, to enable the parties to verify one another's observance of the undertakings, and to have recourse to a system of enforcement in the event that the undertakings were not being observed. In respect of measures of drastic disarmament at least, the preferred approach of all governments is, of course the multilateral one.

The unilateral approach to arms control embraces a number of distinct viewpoints, all of which have in common the belief that particular states may advance arms control without waiting for the agreements of others; together with a certain pessimism about the outcome of multilateral negotiations, or impatience with their progress so far. One form of unilateralism is the idea of unilateral disarmament, as represented by the view of the Campaign for Nuclear Disarmament in Great Britain that that country should unconditionally dispense with nuclear weapons. A second form of unilateralism is the view maintained by some writers in the United States that that country, without going so far as to engage in drastic unconditional disarmament, should engage in limited measures of "lowering its guard", in the hope of provoking a similar response in the Soviet Union, and so transforming the vicious circle of the arms race into a virtuous circle of increasing mutual trust and confidence. This variety of unilateral approach is in a sense multilateral; it substitutes for the negotiation of formal agreements by discussion the negotiation of tacit agreements by concrete actions. A third form of unilateral action is that which already forms an important part of United States military thinking, and was noted above; the taking of certain steps, as for example to lessen the danger of war arising from a technical accident or failure of command and control, not simply in the hope of provoking some response in the Soviet Union that would be of value, but in the belief that the steps themselves are in the interests of both sides, whether this is appreciated by the Soviet Union or not.

It is not proposed here to explore these issues any further in general terms, except to note that there is no necessary conflict between the multilateral and

the unilateral approaches; and that all three forms of the latter approach mentioned, can be reasonably adopted in certain circumstances.

The Comprehensive vs. The Partial Approach

A further controversy concerns whether, if arms control is to be advanced by seeking international agreements, these agreements should be general and comprehensive in scope, or local and partial.

The advocates of arms agreements that are general in the sense that they impose restrictions on all militarily significant powers, and comprehensive in the sense that they limit all categories of armaments and armed forces, take as their starting-point the observation that the arena of international military competition is general and comprehensive in character. That is to say, because the growth of strategic mobility in land sea and air power has made states that are geographically remote capable of making war against one another, the level at which any one state fixes its military power is relative to that of all the other states in the international system. Although there are local military competitions as between Nato and the Warsaw Pact in Europe, between Israel and the Arab states, or between India, Pakistan and China, these competitions are not isolated from one another but together form part of a military competition which is *general*. At the same time military competitions like that between the Western alliance and the Soviet Union embrace a great many kinds of armed power: land, sea and air; nuclear and non-nuclear; numbers of troops and types of equipment and so on. The level at which the United States determines, say, the number of I.C.B.M's it disposes, is relative not merely to the number of I.C.B.M's it believes the Soviet Union to possess, but to the whole range of Soviet armaments and armed forces. In this sense the military competition between the two states is *comprehensive*.

According to the advocates of general and comprehensive arms agreements, any treaty which is merely local in effect (as e.g. the creation of a non-nuclear zone in Europe) or merely partial (as e.g. a nuclear test ban treaty), cannot halt the arms race. It merely closes one department of the arms race, and channels it into other directions. Thus an agreement which prohibited nuclear weapons only in a certain area of Europe might be expected to lead to increased competition in the deployment of weapons outside Europe. Or to take another example, the conclusion of a nuclear test ban treaty might be expected to intensify competition in delivery systems for nuclear weapons, or in nuclear weapons that do not require testing, or in chemical and biological weapons. This is an interpretation for which the past history of arms agreements provides some support. Thus the limitation of battleships and aircraft carriers in the Washington Naval Treaty of 1922 led to increased competition in cruisers. The conclusion to which this doctrine points is that no agreement can halt the arms race which does less than embrace all important states and all kinds of armaments.

The logic of this argument is impeccable. Nevertheless, partial and local arms agreements may be defended on two grounds. In the first place, it may be argued, there cannot be such a thing as an arms agreement that is truly general and comprehensive; the draft treaties to which this name is applied are in effect partial treaties; and thus the objections that are made against partial systems, although they are true, apply to the so-called general and comprehensive treaties also. The reason for this is that there is no clear and absolute dividing line between what constitutes "armaments and armed forces" and what does not. The more things that are specified in a treaty prescribing military force, the more things not specified take on military significance. Thus if nuclear weapons are proscribed, chemical and biological weapons become more important; if these too are prohibited, "conventional" armaments become

more decisive; if these too, the ability to adapt civil assets such as commercial aircraft, nuclear and chemical industries, etc., to military purposes, become the decisive element in international military competition. It may be argued, therefore, that the net can never be cast wide enough to embrace all possible ingredients in military power, and that therefore all possible arms control systems are partial systems.

Secondly, it may be said on behalf of partial agreements that arms control may serve other useful functions than that of imposing a straitjacket upon the arms race. The removal of weapons from particular areas of the world, or the closure of the arms race in a particular area such as the test explosion of nuclear weapons or the militarisation of outer space, may contribute to international security in itself, even if it does not prevent the continuation of the arms race in other parts of the world and other kinds of armament.

The Drastic vs. The Modest Approach

Whether or not agreements are possible that are truly general and comprehensive, another disagreement concerns whether arms control should take drastic changes in the present position as its objective, or modest ones. In the Western world, this is the most important difference of opinion among those who have devoted their attention to arms control. On the one hand there are those who consider that the whole value of arms control lies in the prospect that it will lead to an agreement for general and complete disarmament or for something closely approximating to it. They look forward to a single, dramatic step that would produce vast changes in a relatively short time; and they consider that modest measures, such as the limited nuclear test ban treaty, are valuable not so much in themselves as for the promise they seem to contain that a great transformation may be undertaken some time in the future. On the other hand there are those who consider that general and complete disarmament is a goal that cannot be reached, at all events in the present world; and that it serves only to distract attention from the modest steps that are in fact within the reach of statesmanship. Limited agreements, in the view of these latter authorities, should be assessed not in terms of the more drastic agreements that they might lead to, but on their own merits.

The basis of the case for pursuing drastic measures is the feeling that the present system of international relations is bound in the long run to give rise to disaster, even if modest measures can stave it off for a few more years; that time is running out, and that all efforts should be bent to alter the system while the opportunity to do so still exists, however slender the hope may be that these efforts will meet with success.

Those who favour the modest approach consider that however desirable a drastic change in the international system may be it cannot be legislated in a single, sweeping step. They consider that a world in which states are determined to retain substantial military force in their own hands must be taken as a given in any approach to arms control at the present time. The problem of arms control, as they see it, is to achieve the maximum of international security in such a world as that, at the same time hoping that the cumulative effect of the measures that are undertaken will be gradually to produce changes of a fundamental character in the long run. Insistence on general and complete disarmament now, they consider, is a frivolous distraction from the main business in hand: the identification and pursuit of those measures of arms control that are consistent with the perceived interests of states here and now.

It is sometimes argued on behalf of the drastic approach that, whether it is feasible or not, no other approach is possible since it is only this approach that public opinion will stand for. This is not the only reason why the western governments now officially pursue the drastic approach; but undoubtedly a major

reason why they do so is the feeling they have that drastic disarmament is a difficult thing to appear to be against.

The advocates of the modest approach reply that in the field of arms control governments have a duty to educate public opinion as to the actual position, if they believe it to be mistaken, rather than to follow it blindly. It is pointed out also that public opinion in Western countries has become more sophisticated about arms control, less ready to be impressed by simple slogans; and that the time may now be ripe for greater frankness on the part of Western governments in the public presentation of their policies.

III—GENERAL AND COMPLETE DISARMAMENT

The current positions of the United States and the Soviet Union on the question of general and complete disarmament are stated in the Revised Soviet Draft Treaty on General and Complete Disarmament Under Strict International Control, of 24th September 1962, and the United States' Outline of Basic Provisions of a Treaty on General and Complete Disarmament in a Peaceful World, of 18th April 1962. Here an attempt will be made to state briefly the resemblances and differences between these proposals, and to comment on some of the outstanding problems they raise.

Points of Agreement

The formal resemblances between the two plans are considerable and reflect attention on both sides at least to the letter of the Joint Statement by the United States and the U.S.S.R. of Agreed Principles for Disarmament Negotiations of 20th September 1961 (the McCloy-Zorin Statement). These principles may be summarised as follows:

1. The goal of negotiations is the general and complete disarmament of states, accompanied by the establishment of reliable procedures for the peaceful settlement of disputes and effective arrangements for the maintenance of peace.
2. States will nevertheless retain those non-nuclear armaments and forces necessary for internal security purposes, and shall support and provide agreed manpower for a United Nations peace force.
3. To this end the programme shall provide for abolition of armed forces, military establishments and military production, and their conversion to peaceful uses; elimination of all stockpiles of nuclear, chemical, bacteriological and other weapons of mass destruction; elimination of all means of delivery of such weapons; abolition of military organisation and training; and discontinuance of military expenditures.
4. The disarmament programme shall be implemented by stages, transition to a subsequent stage being conditional upon agreement that the previous stage has been completed and that verification arrangements for the next stage are ready to operate.
5. All measures of general and complete disarmament should be balanced so that at no stage of the implementation of the treaty could any state or group of states gain military advantage and that security is assured equally for all.
6. All disarmament measures should be implemented from beginning to end under strict international control; this control to be carried out by an International Disarmament Organisation created within the framework of the United Nations, whose inspectors should be assured unrestricted access without veto to all places necessary for the purpose of effective verification.

7. Progress in disarmament should be accompanied by measures to strengthen institutions for maintaining peace and the settlement of disputes by peaceful means.

8. States participating in the negotiations should seek to achieve and implement the widest possible agreement at the earliest possible date.

In accordance with these principles both the plans referred to provide for the general and complete disarmament of sovereign states, subject to the retention of internal security forces and to the provision of manpower for a U.N. peace force. Both lay down that this will be achieved in three stages. Both accept the principle of inspection in all stages by an International Disarmament Organisation. And both accept also the idea of enforcement of the agreement of a U.N. authority.

Points of Disagreement

However, the two great powers place such different interpretations upon the agreed principles as to create a wide gap between the two plans:

(a) Time Limits

The Soviet plan sets a time limit of five years upon the whole process. The treaty could come into force six months after signature; completion of the first stage would take eighteen months; completion of the second stage a further twenty-four months; and completion of the third stage a further one year. The United States, by contrast, sets no time limit upon the process as a whole. In the United States' plan, the treaty would come into force three months after signature; completion of the first stage would take three years; completion of the second stage a further three years; and completion of the third stage "within an agreed period of time, as promptly as possible".

(b) Measures of Disarmament

There are sharp divergences in the actual measures of disarmament stipulated in the three stages. Broadly, the Soviet plan provides for very drastic measures of disarmament in the first and second stages, whereas the United States plan leaves these to the third stage. In the first stage both plans provide for a number of measures to reduce the risk of war, such as a nuclear test ban treaty, an agreement on the non-dissemination of nuclear weapons and on the demilitarisation of outer space. However, in the nuclear field the Soviet plan provides for so drastic a measure as the abolition of all means of delivering nuclear weapons, including all rockets, aircraft, ships and artillery systems adapted to this purpose—apart from an agreed number of intercontinental missiles, anti-missile and anti-aircraft missiles to be preserved (as a "minimum deterrent") until the end of the second stage. The United States' plan by contrast provides merely for a 30 per cent reduction in the means of delivering nuclear weapons, and for the cessation of further production of fissionable material for use in nuclear weapons. In the conventional field, the Soviet plan calls for the drastic step of the abolition of all foreign military bases and removal of all troops from alien territory; along with the reduction of United States and Soviet troop levels to 1.7 million each, and "proportionate" reduction of conventional armaments and military expenditure. The United States' plan, by contrast, makes no mention of foreign bases or troops stationed abroad in this stage, and calls for troop levels of 2.1 million for each of the two major powers, and a 30 per cent reduction in conventional armaments.

In the second stage the Soviet plan calls for the elimination of all nuclear weapons and other weapons of mass destruction, together with that of the residual number of nuclear delivery systems permitted in the first stage. The

United States' plan, by contrast, requires no measures of reduction of nuclear weapons at this stage, but requires a 50 per cent reduction of the nuclear delivery systems that remain after the 30 per cent reduction carried out in the first stage. In the conventional field, the Soviet plan calls for reduction of Soviet and United States troop levels to 1 million each at this stage, together with "proportionate" reductions in conventional armaments; while the United States' plan requires a 50 per cent reduction in the troop levels and armaments existing at the end of the first stage.

In the third stage each plan calls for the remaining measures necessary to achieve the general and complete disarmament of states.

(c) *Verification*

There are two fundamental differences between the United States and the Soviet Union in the arrangements they specify for verification; one concerning the kind of inspection that is to be carried out; and the other the nature of the machinery that is to direct and administer the inspection process.

The United States' plan insists that inspection should check not merely that measures of reduction of armaments and armed forces that have been agreed should be carried out ('verification of disarmament'), but also that what is reduced or abolished is not replaced ('verification of non-replacement'), that the levels which exist after reductions and abolitions have taken place are what they are stated to be ('verification of remainders') and that armaments are not illicitly concealed ('verification of non-concealment'). The Soviet Union, however, always makes clear in negotiation that the only sort of inspection it is prepared to tolerate is the first kind, 'verification of disarmament'. It is hard to escape the conclusion that this makes nonsense of the Soviet Union's claim that it accepts the principle of inspection.

Both plans provide that verification be the responsibility of an International Disarmament Organisation, to consist of a conference of all the signatory states, a control council of a smaller number of them, and an internationally recruited staff. However, whereas the United States envisages that the actual direction of verification be in the hands of a single administrator, empowered to report to the control council as to whether or not implementation of agreed measures has been carried out, the Soviet Union's proposals leave it uncertain as to whether or not the 'troika' principle of the concurrence of representatives of all three major political groupings of the world will be a condition of any action the administrative staff takes.

(d) *Enforcement*

Perhaps the most cardinal difference between the two plans, however, lies in their respective provisions for the enforcement of the disarmament agreement. Both recognise the principle that sanctions will be provided by a central international authority; but whereas the Soviet Union apparently envisages an authority which is at most a modification of the existing machinery of the United Nations, the United States clearly has in mind something very much more powerful.

The Soviet Plan provides that in the third stage states undertake to place contingents of their police forces at the disposal of the Security Council, in accordance with Article 43 of the United Nations Charter. In the Soviet Plan, therefore, the international force is made up of national contingents. The forces, moreover, are without nuclear weapons, since another part of the plan specifies that they be equipped "with light firearms". The use to which they would be put is subject to the veto exercised by the five permanent members of the Security Council. And the command of the units making up the force

is to be subject to agreement among representatives of "the three principal groups of states existing in the world".

The United States' plan, by contrast, provides for a United Nations Peace Force which would be studied in the first stage, established in the second stage, and in the third stage progressively strengthened "until it has sufficient armed forces and armaments so that no state could challenge it." It is not stated that the force would be equipped with nuclear weapons, but there is nothing in the United States' plan that would exclude this. The plan is not specific as to the composition or controlling authority of the force. It does, however, clearly associate the progressive weakening of the military power of sovereign states with that of the progressive strengthening of the peace force. Moreover, the United States' plan, unlike the Soviet plan, ranges outside the field of disarmament arrangements themselves to take into account some of the problems which disarmament might be likely to create for the structure of international society. Thus it provides for the acceptance of new obligations to refrain from the threat or use of force; for the codification of rules of international conduct related to disarmament; for the study of measures assuring states against indirect aggression and subversion; for the development of peaceful methods of settling disputes—including acceptance in the second stage of the compulsory jurisdiction of the International Court of Justice; and for a United Nations Peace Observation Corps, to be established in the first stage.

The difference between the Soviet and the United States' conceptions of the enforcement of disarmament is rooted in a fundamental disagreement about the kind of international order which it should be the purpose of the plans ultimately to create. The Soviet plan is based squarely on the idea of the maximum possible disarmament, without providing for any other changes of a far-reaching sort in the organisation of international relations. The United States plan attempts to link the disarmament of states with the concentration of military power in the hands of a central authority, and to regard both as inseparable from changes in the organisation of international relations that involve much more than disarmament itself and that are unlikely to be capable of compression into a timetable laid down in a treaty.

Outstanding Problems

The negotiation of any agreement on arms control presents three classic problems. First, there is 'the problem of the ratio', the problem of determining what measures of reduction or limitation are to be agreed upon, and consequently what ratio of military power among the parties the treaty will produce. Secondly, there is the problem of establishing adequate verification that the measures of reduction or limitation will be carried out. And thirdly there is the problem of enforcement or sanctions.

The present position of the Soviet Union falls far short of the conditions which the United States and Great Britain consider adequate on all three of these points. As regards the 'problem of the ratio', the Soviet plan includes measures which in the Western view would swing the present balance of power in favour of the Soviet Union. Most notable of these is the proposal for abolition of foreign bases and withdrawal of foreign troops in the first stage. This would have the effect of leaving the allies of the United States exposed to the superior land power which the Soviet Union could bring to bear upon Europe, even after its forces had first been withdrawn to Soviet territory. At the same time the proposal for abolition of means of delivering nuclear weapons would eliminate one department of military competition in which the United States now has a marked superiority.

As regards the problem of verification, the Soviet insistence that inspection be of the process of disarmament only, leaving parties to the agreement

without means of determining what armaments or forces are retained, replaced or concealed, is tantamount to rejection of the whole principle of inspection. In such circumstances the Western powers can conclude agreements with the Soviet Union only in those areas where, as in the case of the prohibition of nuclear test explosions in the atmosphere, under water and in outer space, adequate verification is possible without on-site inspection.

As regards the problem of enforcement, the Soviet view is at loggerheads with the Western view, at least where drastic disarmament is concerned. In the case of modest agreements—as e.g. the measures proposed in the first stage of the United States' plan—the western powers have shown themselves willing to do without any powerful central authority to provide sanctions, leaving enforcement as in the Soviet plan simply to the action of particular states and to the machinery of the United Nations. But where drastic measures of disarmament are concerned, of the sort proposed in the third stage of the United States' plan and in all stages of the Soviet plan, the Western view is that no existing machinery for the enforcement of international agreements provides adequate protection. A state which successfully violated a nuclear disarmament agreement that had been carried out by all other states, for example, could not be dealt with by particular other disarmed states, equipped "with light firearms", not by a veto-bound Security Council controlling a force composed of national contingents armed in this manner.

It would seem, therefore, that progress is not likely to take place on general and complete disarmament until there is a change in the Soviet position on these questions. In addition, two other uncertainties should be mentioned.

The first is that the seriousness of the United States in the proposals it has put forward has not yet been put to the test. The atmosphere in which United States' plans have been put forward in recent years has been one in which it has always seemed improbable that the Soviet Union would accept them. If Soviet agreement were in fact to be forthcoming, the United States Congress would then have for the first time to ask itself seriously whether it was prepared to accept the risks and penalties which its own plan incurs.

The second is that before any plan for general and complete disarmament could be implemented the agreement of powers other than the United States and the Soviet Union would have first to be secured. The whole emphasis of disarmament discussions since 1945 has been on achieving an agreement between the two leading powers. However, these two states have never been in a position to impose a bilateral agreement on the rest of the world, and their ability to do so is perhaps further declining. China has never participated in the disarmament negotiations; France at present absents herself; such important states as Western Germany and Japan, although through no fault of their own, have never taken part. Although a number of neutral states participate in the present Eighteen Nation disarmament conference they have sought simply to bring the two great powers together, and have not yet faced the problem of negotiating the arms limitations that they themselves are prepared to accept. A truly general disarmament treaty presupposes vast multi-lateral negotiations of a sort that have not yet even begun.

IV—LOCAL AND PARTIAL MEASURES

As was stated at the outset, the field of arms control embraces a great deal more than the pursuit of general and complete disarmament; it embraces agreements for local or partial disarmament; agreements which do not involve disarmament; and certain sorts of unilateral action. The United States and the Soviet Union are committed by the eighth of the McCloy-Zorin principles (see above, page 34) to seek the widest possible agreement at the earliest

possible time: that is to say, not to use the long-term pursuit of drastic measures as a means of circumventing modest agreements that may be feasible at once, while at the same time not to use the latter as a means of distracting from the ultimate goal of general and complete disarmament.

In the field of more modest measures, unlike that of general and complete disarmament, some important agreements have already been achieved; the Antarctica agreement of 1959; the Hot lines Agreement of June 1963; the limited nuclear test ban treaty of September 1963; and the declaration by the United States, the United Kingdom and the Soviet Union on the placing of weapons on orbital vehicles, of 1964; and the unilateral reductions announced by these same three powers in the production of fissionable material for use in nuclear weapons. The gathering momentum of these agreements over the last twelve months, together with the atmosphere of political detente which these agreements express and confirm, suggests the possibility of further progress along these lines.

Among the measures in which the Soviet Union has recently expressed interest are the following list which that country submitted to the General Assembly in September 1961: Freezing the military budgets of states; renunciation of the use of nuclear weapons; prohibition of war propaganda; conclusion of a non-aggression pact between the NATO countries and the Warsaw Treaty countries; withdrawal of troops from foreign territory; measures to prevent the further spread of nuclear weapons; establishment of nuclear-free zones; and steps to decrease the danger of surprise attack.

A number of these measures have failed to arouse interest among the Western powers, and indeed are unlikely to be accepted by them, unless in return for some *quid pro quo*. The freezing of the military budgets of states, for example, would seem to injure the Western states, with their greatly superior economic resources, more than it would the Soviet Union, while raising the question of inspection which has proved the stumbling block of so many attempts to arrive at agreement between the two parties. The idea of renunciation of the use of nuclear weapons would seem to undermine the present Western policy of deterrence, while in return providing the Western powers with nothing more than a formal assurance of Soviet intentions. The idea of a non-aggression pact between the NATO and Warsaw Pact nations would merely re-assert obligations which are already laid down in the United Nations Charter. The withdrawal of troops from foreign territory, as was noted in connection with the inclusion of this provision in the Soviet general and complete disarmament plan, imposes special disadvantages on the West.

Among measures which the United States has recently put forward as subjects of separate negotiation are a 'cut-off' in the production of fissionable material for nuclear weapons; a freeze in the production of new quantities and types of nuclear delivery vehicles; notification and pre-launch inspection of space vehicles and missiles; a comprehensive nuclear test ban treaty; and an agreement on non-dissemination of nuclear weapons. Again, certain of these agreements have evoked no response in the other side. The idea of a 'cut-off' in nuclear weapons production, for example, requires the Soviet Union to accept on-site inspection without securing for itself any actual disarmament in return, a principle to which it has always been opposed; in addition, it may be seen as imposing a unilateral disadvantage upon the Soviet Union, inasmuch as the existing balance of nuclear stockpiles which such an agreement would freeze is favourable to the United States. Broadly the same objections apply also, from a Soviet point of view, to the proposed freeze on missile construction.

Of the possible agreements in which both sides have expressed *prima facie* interest and which, if achieved, would be of some significance, three may be singled out for mention; a comprehensive nuclear test ban treaty; an agreement on the non-dissemination of nuclear weapons; and a regional arms control agreement in Central Europe.

A Comprehensive Nuclear Test Ban Treaty

If the present limited nuclear test ban treaty were to be extended to cover tests underground, the purposes of arms control might be advanced in three ways: a more drastic measure of restraint on Soviet-American military competition would have been imposed than now exists; a more serious obstacle than the present treaty would be placed in the way of intending nuclear powers (always supposing that they are signatories of the treaty; France and China, of course, did not sign the Moscow Treaty); and a working system of control by international inspection would have been set up.

The United States and Great Britain at one time maintained that on-site international inspection was necessary to verify any sort of test ban treaty. However, by 1962 research had convinced them that a three elements test ban could be monitored by national systems alone, and that it was only in relation to underground nuclear tests that on-site inspection was necessary. By the end of 1962 Western scientific advisors were maintaining that after all known methods for distinguishing earthquakes from explosions had been employed there would still be about thirty events a year due to shallow earthquakes in the Soviet Union which could not be distinguished from nuclear explosions. Consequently United States and British negotiators demanded seven or perhaps fewer annual veto-free on-site inspections in the Soviet Union, as the price of a comprehensive ban.

The Soviet Union for three years admitted the principle of international inspection. They accepted three veto-free on-site inspections a year, and fifteen permanent control posts on Soviet territory, involving the presence of about two hundred foreign observers. However in November 1961, after resuming nuclear testing, the Soviet Union repudiated the principle of control posts and on-site inspection in the Soviet Union, and insisted that national monitoring alone provided sufficient verification of a comprehensive test ban, accusing the Western powers of seeking inspection of Soviet territory for purposes of espionage. This remains the Soviet position.

A Non-Dissemination Agreement

A number of measures of arms control are already in operation inhibiting the spread of nuclear weapons. One is the limited nuclear test ban treaty which requires non-nuclear signatories not to test nuclear weapons in the three elements specified, the nuclear signatories not to assist them to do so. Another is the practice of nuclear states, in assisting non-nuclear states to develop nuclear industries for peaceful purposes of insisting on controls to ensure that the industries so established are not used for military purposes. Another is the unilateral policy adopted by the United States and the Soviet Union, although not carried out entirely consistently by either of them, of refraining from assisting their allies to acquire nuclear weapons (the Soviet Union, according to Chinese statements, agreed to assist the Chinese nuclear programme in 1957 but abrogated the agreement in 1959; the United States has assisted Great Britain, especially since the revision of the McMahon Act in 1958.)

However, the inhibition of the spread of nuclear weapons might be greatly strengthened were formal agreements to be entered upon, by the Have states not to assist the Have Not states to enter the nuclear club, and by the Have Not

states to refrain from attempting to do so. In 1961 the United Nations General Assembly unanimously passed the Irish resolution calling for agreements along these lines, if possible subject to inspection and control. The United States and the Soviet Union both include these agreements in the first stages of their respective general and complete disarmament plans.

The stumbling-block to Soviet-American agreement on this proposal is the United States' proposal for a Nato Multilateral Nuclear Force. The Soviet negotiators maintain that this proposal has the effect of transferring control of nuclear weapons to Western Germany, the potential Nth country which perhaps more than any other she is anxious to exclude from the nuclear club. The Western powers maintain that on the contrary the M.L.F. does not have this effect, but is designed to prevent the spread of nuclear weapons to Western Germany and other potential nuclear powers in Nato.

These Soviet objections raise the question of the place of arms control objectives in Western unilateral policy in its acutest form. On the one hand the United States, in order to dissuade her European allies from persisting in national nuclear programmes and at the same time retain their adhesion to the Atlantic alliance, tends to stress that the M.L.F. will provide European participants in it with a wide measure of control. On the other hand, if she is to move towards agreement with the Soviet Union on non-dissemination, she must demonstrate that it extends to them very little control. If the Soviet Union proves to be unshakable in its contention that the price of a non-dissemination agreement is the abandonment of the M.L.F. scheme, the question with which Western policy must come to grips is which of these objectives of policy is the more important.

A Regional Agreement in Central Europe

Central Europe more than any other part of the world has been the subject of proposals for regional systems of arms control. There are perhaps two reasons for this. In the first place it is here that the chief military confrontation between the two blocs takes place, and that is the most likely source of friction that could give rise to war. In the second place the political impotence, until recently, of eastern Europe in relation to the Soviet Union, and of continental Western Europe, and especially the Federal German Republic, in relation to the United States, provided an atmosphere in which it seemed easier to secure acceptance for arms control schemes which imposed restrictions only in the European area than for schemes which related also to the two superpowers outside this area. The great change that has overtaken the discussion of central European arms control schemes in the last few years results from the growing political strength of Western Germany and continental Western Europe generally in Nato, and to a much lesser extent the new-formed political independence of certain of the satellite countries within the Warsaw Treaty framework. The United States and the Soviet Union must now pay much closer attention, in discussing European arms control schemes, to the views of their allies within the region, who are sensitive to restrictions that seem to discriminate against them or to suggest a weakening of their major ally's commitment to their defence.

Two proposals at present enjoy a significant degree of support among the states concerned. One is the idea of a nuclear-free zone (which has been entertained also in relation to Latin America, Africa and the Pacific). The other is the proposal for mutual inspection against surprise attack.

The most prominent proposal for a nuclear free zone in central Europe is the Rapacki Plan, first advanced by the Polish Foreign Secretary in October 1957, and repeated a number of times since then. Those who favour this and analogous proposals stress one or the other of two advantages. In the first place

a nuclear-free zone may be an approach to the problem of arresting the spread of nuclear weapons. The Polish proposal, for example, would prohibit nuclear weapons in the two Germanies, Poland and Czechoslovakia, and would thus exclude the possibility of the acquisition of nuclear weapons by these states (unless they were to maintain them at sea or in outer space). This seems to be the Polish object in advancing the proposal; since East Germany, Poland and Czechoslovakia have no prospect of acquiring nuclear weapons in the foreseeable future, whereas Western Germany has, the practical effect of the plan would relate to Western Germany alone. The other purpose which such a zone might serve is to reduce the danger of nuclear war by escalation. If no nuclear weapons were stationed in the area, then the danger that a conventional war might inadvertently grow into a nuclear one, because of some technical accident or breakdown in command and control, would be the less.

The Soviet Union and Poland support the idea of a nuclear free zone in central Europe; but in the Western alliance, although certain groups favour it, most notably the British Labour Party, all governments are at present unfriendly to the idea. Western Germany is strongly opposed to the scheme, partly because it smacks of discrimination against her within Nato, reasserting as it does the existing obligations which the Federal Republic has not to manufacture nuclear weapons under the 1954 Paris Agreements, and adding to them a prohibition of foreign-controlled or jointly-controlled nuclear weapons on her soil; partly because of a desire to preserve the maximum of deterrence of war initiated by the Soviet Union, and ensure an effective forward defence if deterrence should fail; and partly because of a fear that an arms agreement of this sort would have the effect of sanctifying the political status quo and in particular the division of Germany. The other Western governments oppose the Rapacki plan either because they share the Federal Government's misgivings, or because they do not wish to cause it offence.

Another version of the nuclear free zone idea would relate to a narrower area than that specified in the Rapacki plan, and would constitute simply a widening and formalisation of the *de facto* non-nuclear zone which already exists for a few kilometres on either side of the Iron Curtain. If it did not embrace the whole of West German territory, it would not be open to the objection that it discriminates against a particular ally. Although it would not serve the purpose in itself of arresting the spread of nationally controlled nuclear forces, it would serve that of providing a firebreak against escalation. Whether tactical nuclear weapons should be placed as far forward as possible, or held in reserve, is a matter on which disagreement exists within Nato; and this would have to be resolved before the idea of a nuclear free zone of (say) one hundred kilometres on either side of the Iron Curtain could become acceptable to the West; however, the proposal is mentioned here as one enjoying the support of some authorities.

The other important European arms control proposal is for inspection against surprise attack. This concerns the danger of a local surprise attack, whether involving nuclear weapons or, as would seem more likely, conventional forces only. The Soviet Union in the Eighteen Nation Disarmament Conference proposed the setting up of land control posts at railway junctions and major ports and of motor roads, to ensure that dangerous concentrations of armed forces and military equipment did not take place. The Western powers expressed willingness to consider this proposal, and it does seem one which is in principle negotiable.

V—ARMS CONTROL AND THE CHANGING PATTERN OF INTERNATIONAL POLITICS

The problem of arms control since 1945, like all international politics, has been dominated by the relations of two powers, the United States and the Soviet

Union. It is in the conflict between these states that the dangers have chiefly been identified which measures of arms control have been intended to alleviate; and it is in the conclusion of agreements between the two giants that hopes of advancing arms control have been thought to lie.

In the last few years a certain measure of progress has been registered towards arms control of this sort, symbolised above all by the 1963 Moscow Treaty. Underlying it is the measure of political detente which grew up between the two great powers in the wake of the 1962 Cuban crisis; and the stabilisation of the arms race that resulted from the acquisition of large numbers of invulnerable nuclear missiles on each side, and from the achievement by Nato of a conventional capability in Europe approaching parity with that of the Soviet Union.

However, simultaneously with this movement towards rapprochement between the two great powers, there has occurred a widening split between each of them and certain of its allies. It is arguable that the drawing together of the United States and the Soviet Union is a cause of the Franco-American and Sino-Soviet disputes or that it results from them; but it can scarcely be contended that these two phenomena occurred quite independently of one another. Questions of arms control are at the heart of the issues which have tended to unite the two great powers and divide them from certain of their allies. The United States and the Soviet Union have shown themselves to be sensitive of two common interests in the field of arms control, above all: the reduction of the risk of war by accident or miscalculation; and the prevention or inhibition of the spread of nuclear weapons. These are interests which, it may be argued, are not exclusively those of the two great powers, but are shared by them with all other states. Nevertheless, the attempt to place obstacles in the path of intending nuclear powers has brought the United States into conflict with France and the Soviet Union into conflict with China. And the attempt to reduce the risk of war by accident or miscalculation has brought the United States into conflict with Western Germany, and to some extent with her other European allies also; as it has provided a further source of discussion between the Soviet Union and China.

Thus in the field of general and complete disarmament the United States has advanced a plan which enjoys the general support of the United Kingdom and some other western governments; but France has clearly dissented from it to the extent of absenting herself from the negotiations, and Western Germany plays no part in the discussions from which the United States' plan emerges. In the field of local and partial measures, to use only the examples that were considered in this paper, the United States is in a position of having to choose between agreement with the Soviet Union and the maintenance of good relations with France and Germany. Agreement on a comprehensive nuclear test ban can be purchased only at the price of a breach with France; agreement on a non-dissemination pact only at the price of a breach with both France and Germany; and agreement on a non-nuclear zone in Europe at the latter price also. Finally, in the field of unilateral arms control policy, the United States embarked on a policy of 'flexible response' from which Western Germany, France and even Great Britain dissent in some degree.

These developments raise the question whether the chiefly bilateral approach to arms control, the assumption that it is the dangers of Soviet-American relations that must be allayed, and that it is Soviet-American agreement that must above all be striven for, is any longer adequate to the military dangers that now exist in the world. If the ability of the two great powers to speak for their allies or to determine their policies is on the decline, this would seem to suggest that agreements reached by the United States and the Soviet Union without the consent of France, Western Germany and China are of

limited value. Moreover, if the conflict between the United States and the Soviet Union is not the only serious one in the world, if the new rifts that are complicating the pattern of international politics grow wider and produce military dangers of their own, then arms control policies aimed simply at moderating the bilateral conflict of the two great powers may become increasingly irrelevant. An important question at the present juncture is whether, if the arms control thinking that emerged in the bilateral or bipolar world of the 1950s is to remain relevant in the next few years, it must not be re-formulated so as to be appropriate to the multilateral or multipolar world that is now emerging.

ARMAMENT AND MODERN WEAPONS

By: DEPARTMENT OF NATIONAL DEFENCE

April, 1965

Introduction

1. This paper was prepared on the instructions of the Chairman, Defence Research Board at the request of the Special Committee on Defence of the House of Commons primarily for the use of that Committee. It is, of course, impossible to describe in detail all aspects of modern armaments within the limits of a short paper; the most that can be done is to outline some of the more important developments. Attention has been focused upon those developments in modern armaments which appear to be of greatest significance to Canada.

2. At the outset it is desirable to call attention to the modern concept of a weapons system. A weapons system may be defined as the entire complex of men and machines required for the performance of a particular military task. A major weapons system typically includes a number of sub-systems for such functions as intelligence gathering, information processing and exercise of operational control as well as the more obvious function of warhead delivery. These ancillary functions are vital to the performance of the military task and determine to an important degree the operational characteristics and capabilities of the system. Use of the systems concept may be extended to complexes of weapons. For example, one may think of an infantry division as a major system comprising a variety of weapons which are, in effect, sub-systems. This wider conception of a weapons system can be intended to comprehend many items of equipment, such as transport aircraft or landing craft, which are not normally regarded as weapons but which have an important bearing upon military operational capabilities.

3. In order to discuss the operational capabilities of weapons systems, one must pay some attention to the situations in which these weapons might be used. One must therefore call attention to the very wide spectrum of circumstances in which military operations might conceivably occur. One extreme is all-out nuclear war, that is war waged with nuclear weapons without restriction as to targets or weapons. At the other end of the spectrum are peace-keeping activities and the maintenance of civil order which may involve no more than a limited display of force. Between these two extremes there are many other possibilities.

4. One should observe that modern weapons systems are subject to continuing evolution as a result of research and development. Changes may come about owing not only to improvements in weapons, but through improvements in sensors, data processing, means of control, and other ancillary sub-systems. This process of continuing innovation is not fortuitous, it is the result of the very large resources in manpower, money, and intelligence currently being devoted to military research and development by all of the principal nations of the world. It is interesting to note that during most of the nineteenth century the total military expenditures of major European nations typically amounted to between one and two percent of the Gross National Product. At the present time this is roughly the fraction of the national resources which major powers are devoting to military research and engineering.

ORGANIZATION OF THE PAPER

5. For the purposes of discussion, it is convenient to divide contemporary weapons system into two groups, strategic and tactical. This division is somewhat arbitrary but represents a distinction with regard to the nature of modern weapons systems and the purposes for which they might be employed. Strategic weapons may be defined as those weapons, both offensive and defensive, which are capable of affecting directly the outcome of a long-range nuclear exchange. All other weapons systems are tactical including short-ranged nuclear delivery systems which are designed for use against military targets.

6. It is, however, necessary to give some attention to strategic offensive weapons since these are dominant weapons of the contemporary period and determine, to a very large extent, the political and strategic environment in which Canadian defence programs, as well as those of other nations, must be conceived.

7. The category of tactical weapons embraces a very wide spectrum and within this general category many systems of further classification could be employed. For the purposes of the present paper, the most suitable system of categories seems to be this conventional one of land, sea and air. One should observe, however, that there is a very evident tendency towards the closer integration of land, sea and air operations. Consequently, if one were concerned with operations rather than with weapons the conventional system of categories would not be satisfactory. Even in the case of weapons there are a number of important "overlaps" such as that between interceptor aircraft and land-based air defences.

8. The present paper is therefore divided into the following sections:

- I Strategic weapons systems
- II Weapons systems employed by ground forces
- III Weapons systems employed by theatre air forces
- IV Weapons systems employed by naval and maritime forces
- V Biological and chemical weapons

I—STRATEGIC WEAPONS SYSTEMS

9. For the purposes of the present paper, a strategic weapons system may be defined as one involving weapons which are capable of:

- (a) Direct attack on centres of population or industry; or
- (b) Attack on enemy weapons systems which are capable of delivery of nuclear warheads at long range; or
- (c) Direct defence against enemy long-ranged nuclear delivery systems.

The distinguishing characteristics of strategic weapons systems is that they are capable of deciding the outcome of a war almost independently of the results of combat between conventional land, sea and air forces. Somewhat comparable methods of warfare have existed in the past in the form of siege operations or naval blockade. However, these older methods had the characteristics that they were in most cases not available in the same degree to both opponents, and involved lengthy operations lasting many months or even years. The great change introduced by nuclear weapons is that it is now technically feasible to produce devastating damage within a very short space of time. Furthermore, these weapons are available to both of the two superpowers. Although the United States continues to possess a very substantial superiority in strategic nuclear weapons and delivery systems, the U.S.A. is

severely constrained in the use which it can make of this superiority. This situation can appropriately be described as one of impasse. It cannot be described as a stalemate since the relationship is dynamic, and under some circumstances—such as Cuba—the U.S. superiority is a useable resource of American policy.

10. Although the nuclear warhead is the heart of a strategic weapons system, there are other important elements which contribute to strategic nuclear capabilities. These include delivery systems, intelligence gathering and targeting, command and control systems, warning systems, and defence systems.

Nuclear Warheads

11. Nuclear warheads are usually described in terms of the total energy released, measured in terms of the amount of T.N.T. required to produce an equivalent release of energy. Thus a kiloton warhead releases energy equivalent to the explosion of 1,000 tons of T.N.T.; a megaton weapon is equivalent in the same sense to a million tons of T.N.T. Energy is released in the form of light, heat, blast, and ionizing radiation. Part of the ionizing radiations is released very quickly after the explosion and part is delayed. In the case of a ground-burst weapon (i.e. one in which the fireball is in contact with the ground) a portion of the delayed radiation is deposited in the vicinity of the target in the form of fall-out. The distribution of energy release varies somewhat with the size of weapon, height of explosion and the details of weapons design. In general, the distribution of energy tends to be about 50% in the form of blast and shock, 35% in the form of heat, 5% in the form of prompt ionizing radiation, and 10% in the form of delayed ionizing radiation. For many cases, energy released by delayed ionizing radiation is neglected in stating the T.N.T.-equivalent of the weapon.

12. Technically, nuclear warheads are of two types—fission and fusion. In the case of fission weapons, the energy release is achieved by splitting the atoms of certain isotopes of heavy elements, either plutonium 239 or uranium 235. In the case of fusion weapons, the principal energy release is achieved by joining together the atoms of light elements, mainly heavy hydrogen. A fusion weapon requires a fission weapon as a trigger and is therefore correctly described as a fission-fusion weapon. Most very large weapons contain a so-called third stage consisting of U238. This isotope of uranium is not spontaneously fissionable but can be fissioned by the very high speed neutrons produced by a fusion reaction. Weapons of this latter type are described in fission-fusion-fission.

13. It is not possible to describe in detail the effects of nuclear weapons in this paper. The relative importance of the different effects depends strongly upon yield and height of burst and to a lesser extent upon atmospheric conditions. A comprehensive description is contained in an unclassified publication prepared jointly by the U.S. Defence Department and the U.S. Atomic Energy Commission under the title "The Effect of Nuclear Weapons". The latest edition of this publication appeared in April 1962. As an example, a ten megaton bomb will produce severe damage to buildings and severe casualties within a radius of about 9 miles. The corresponding radius for a one megaton burst is about 4 miles. Even a one megaton weapon is sufficient to devastate any city except the very largest.

14. Very large weapons up to 100 megatons can now be produced and there appears to be no natural limit from a purely technical point of view. There is, however, no significant military advantage in the use of such superbombs. The U.S. Secretary of Defense has announced that the U.S. does not propose to enter the superbomb field, and indeed has put considerable

emphasis on developing small yield weapons, down to a fraction of a kiloton, for tactical use. It is not possible to rebuild cities underground or give them significant protection against megaton bombs by hardening. However, where targets are small and can be hardened, for example, ballistic missiles in underground silos, the radius of damage even of very large weapons can be drastically reduced.

Delivery Vehicles

15. The function of the delivery vehicle is to convey the warhead to its intended target. The chief delivery systems are aircraft and missiles. Delivery systems may operate from a home base, as in the case of long range bombers and intercontinental ballistic missiles, or from an advanced base such as an aircraft carrier, or a Polaris-type submarine. In order to carry out their intended function, delivery vehicles must be able to survive the journey to the target and to hit the target. From the point of vulnerability in transit, the missile has, for the present, a clear advantage over the bomber. Both bombers and missiles have ample accuracy for attack on population centres in view of the large damage radius associated with the warhead. The bomber has an advantage in accuracy against small hardened targets, although it is possible that missile accuracy can ultimately be improved to a comparable level. The bomber also has an advantage against targets whose location is not precisely known.

16. To some considerable extent the missile has supplanted the bomber as the principal intercontinental delivery system. Nevertheless, the intrinsic advantages of the bomber are sufficiently great that bombers are likely to be retained in considerable numbers by the two super-powers for the more or less indefinite future. Whether or not there will be another generation of manned bombers to replace existing bomber aircraft is an important question which is for the present unresolved. From a technical point of view, several possibilities are available ranging from a hyper-performance very high altitude aircraft to relatively low performance aircraft designed for very long endurance.

17. An important element in present aircraft delivery systems is the stand-off weapon, which enables the bomber to attack the target without coming within range of local air defences. The use of stand-off weapons, however, implies a loss of accuracy which may be significant in the case of hardened targets. For some types of targets it is feasible to employ a homing system in the stand-off weapon. Stand-off weapons are in essence pilotless aircraft and, generally speaking, they can be effectively engaged by existing air defences.

18. It is also at least theoretically possible to launch a ballistic missile from an aircraft although the U.S.A. cancelled the SKY BOLT program owing to excessive costs of development and the apparently inadequate advantages of the system. In such a hybrid system the purpose of the aircraft is to serve as a mobile launch platform for ballistic missiles.

19. The significance of the term 'ballistic missile' is that after a short period of acceleration the trajectory of the vehicle is ballistic; the trajectory is determined almost solely by inertial and gravitational forces. During the greater part of its trajectory a long-range ballistic missile travels above the sensible atmosphere at speeds of up to five miles per second. Between any single launch point and target there are an infinite number of trajectories involving different angles of launch and different launch velocities. A so-called minimum energy trajectory, which involves the maximum range for

a given total thrust, involves a departure angle and an arrival angle of approximately 45 degrees. The essential components of a missile system are:

- (a) The warhead including fuzing arrangements. Although it is possible to employ an HE warhead in a ballistic missile, this would be an extremely expensive way of delivering a comparatively small weight of high explosive.
- (b) The re-entry vehicle. The purpose of this re-entry vehicle is to enable the warhead to survive the extreme heating which occurs upon re-entry into the earth's atmosphere. In practice, the warhead, fuzing system and re-entry vehicle are designed as a single weapons package.
- (c) The guidance system. The purpose of the guidance system is to steer the missile, during the propulsion phase of the flight, onto a trajectory which, following the cessation of propulsion, will cause it to impact upon the target.
- (d) The propulsion system. This consists of one or more rocket motors which impart to the warhead sufficient velocity to enable it to reach the target. In the case of very long-range missiles there are nearly always several rocket motors arranged in stages. This means that motors are ignited successively, the earlier stages being discarded after exhaustion in order to reduce the mass which must be accelerated to very high velocity.

20. The first generation of ballistic missiles, such as the earlier models of the U.S. ATLAS, employed low temperature liquid fuels and radio guidance. The use of these fuels involves very severe problems in handling such materials as liquid oxygen. Radio guidance demanded an elaborate and quite expensive system of ground facilities. Second generation missiles, such as the U.S. MINUTEMAN and POLARIS, employ solid fuels and all-inertial guidance. In effect, once the necessary target has been programmed into the on-board guidance system, the missile is on its own from the moment of launch. Solid fuels and all-inertial guidance have made possible a tremendous simplification, especially in ground handling facilities, and also very great savings in capital and operating costs. It has become possible, in the case of MINUTEMAN, to place the missiles underground in silos which afford a high level of protection against nuclear effects, and, in the case of POLARIS, to mount the missile in submarines.

21. Further improvements in the reliability, accuracy and efficiency of missile systems are possible. A relevant point is that reductions in the weight-to-yield ratios of nuclear warheads tends to increase the military efficiency of missile systems since it becomes possible to exploit the saving in warhead weight in a variety of ways. It is, however, doubtful if there is likely to be within the near future an order-of-magnitude improvement in missile systems comparable to the improvement of MINUTEMAN over ATLAS.

Intelligence Gathering and Targeting

22. The standard of surveying and mapping over the whole world is such that the distance between a launch point and a city target can be obtained to within a mile or so from available maps. There is therefore no particular problem in acquiring intelligence for attack on cities. Military targets are another matter; their locations are often in doubt and, if they are hardened, a higher order of accuracy in location may be required. As a general rule, locations of U.S. military installations are normally made public, but those of the USSR are not; this puts the West at a considerable disadvantage and creates a

greater need for reconnaissance systems. The next few years may see sufficient improvement in sensors, data processing, and data transmission so that nearly all small fixed military installations can be located and identified from satellites. Mobile systems would, of course, be much less vulnerable to detection and localization by satellites. There is also the possibility of concealment, camouflage and deception.

Defence Systems: Anti-Bomber

23. In the mid-fifties the manned bomber was the only vehicle capable of delivering nuclear warheads at intercontinental distances. In North America substantial defences were planned against it, consisting of early warning lines located at several hours flying time from the expected targets, an extensive radar network to locate and track the bombers, area defences consisting of manned interceptors and long-range guided missiles, and point defences around important targets consisting of shorter range guided missiles. This was an expensive system to set up and maintain, both in terms of cost and use of manpower, but there is little doubt that it was capable of providing a substantial level of defence against manned bomber attack.

24. The introduction of the intercontinental missile has changed the situation by providing an alternative means of attack against which there is, for the present, no defence. At the same time strategic missile forces placed in underground silos are less vulnerable to attack and this fact has tended to reduce the need for defence. As a result there have been some reductions in North American air defence programs. However, the intrinsic advantages of the manned bomber remain sufficiently great that both the U.S. and the USSR are continuing to maintain fleets of bombers as well as air defences.

25. In the event that a new generation of strategic bombers is introduced into service by the USSR, many possibilities exist for improved radars, data-processing systems, communications, interceptors, air-to-air armament and ground based missile systems. Such systems would be essentially improvements upon existing systems.

Defence Systems: Ballistic Missiles

26. The United States has developed and deployed three large radars, known as the Ballistic Missile Early Warning Systems (BMEWS), which are capable of providing warning of Soviet ICBMs launched from Soviet territory over north polar trajectories together with a prediction as to where they will fall. A system could be produced capable of providing warning for ballistic missiles launched from submarines or following south polar trajectories from launch sites in the USSR. Up to the present it has not been considered necessary to deploy such systems.

27. In spite of substantial efforts expended over the past few years by the U.S., no operational defence against ballistic missiles has as yet been deployed. This is primarily a matter of cost. The American Nike Zeus system can detect, track, and intercept an isolated object moving at ballistic missile speeds. The problem to which up to the present no sufficiently economical solution has been found is that of saturation, that is, a situation in which the attacker presents a very large number of possible targets under a short period of time. The attacker may be able to produce saturation by the use of decoys which simulate the characteristics of the missile warhead. Saturation may also be produced by the use of multiple warheads or, more expensively by simultaneous missile attacks. Having regard to this problem, the cost of producing an effective defence against long-range missiles has up to the present

appeared to be excessively high, but it is possible that improvements in sensors, data processing and missile guidance may render an AICBM defence economically feasible. The U.S. is pursuing investigations with considerable urgency and the USSR has set up some form of AICBM defence.

28. Up to present all practical schemes for defence against ballistic missiles have involved radar in order to detect and track the incoming warhead and a guided missile in order to intercept and destroy it. Many schemes have been considered for other forms of defence, but it is not clear that any will prove to be worthwhile.

Command and Control

29. Any use of strategic nuclear striking forces, whether limited or otherwise, carries the risk of destruction of the nation. It follows that strategic nuclear forces must be subjected to effective control by the proper political authorities. To ensure that control requirements can be maintained, the command and control system must be reliable, not subject to breakdown, and virtually immune to errors or mistakes. During the past several years the U.S. has invested many hundred of millions in command and control systems.

Future Developments

30. Although many developments are possible in the field of strategic weapons systems, there is in prospect no single development which seems likely to change the general strategic situation in the same degree as the introduction of nuclear weapons or the long-range ballistic missile. Warheads of greater yield, more accurate missiles, and new delivery systems, for example, the use of satellites as bombing platforms, are possible, but none appears likely to produce, in itself, a gross disturbance in the strategic balance. The effects of a development of an effective defence represents a more complex question. As noted above, this is primarily a matter of cost rather than of technical performance. The development of a truly "effective" defence could alter the strategic balance very substantially. However, effectiveness is a relative matter. It seems, however, somewhat improbable that any defence system which is deployed in the next several years will affect the balance between the two super-powers in any drastic way. The effect upon the position of other nuclear powers might be important.

31. The single development in military technology which could have the most far-reaching consequences is almost certainly one which would bring nuclear weapons within reach of many countries. This would be, almost by definition, some development which would reduce the investment and overheads associated with the production of nuclear weapons. Such a development is not impossible although it does not appear, for the present, to be an immediate prospect. Even if such a development were to occur, aspiring nuclear powers would be faced with the problem of acquiring delivery vehicles, and experience has shown that those are even more expensive and technically demanding than are nuclear warheads.

II—LAND FORCES

32. The existence of a state of partial impasse at the level of strategic nuclear deterrent forces imposes considerable restraint on the activities of the great powers. This has tended to transfer the level of military confrontation from strategic deterrent forces to more conventional kinds of military operations.

33. The variety of situations in which conventional forces may become involved is very large and this is especially true of land forces. Such situations range from general war to peace-keeping activities and other forms of military action below the level of overt hostilities. In most situations considerable importance is attached to quick reaction—that is, the ability to respond promptly with forces in being. In this way situations which might otherwise become unmanageable can be kept under control. Fast reaction demands either deployed forces in the immediate vicinity of the trouble area or rapid means of transportation. Strategic mobility has therefore tended to become an increasingly important consideration.

34. The basic formation of modern armies is the division. The division contains a balanced outfit of weapons which render it capable of independent operations. However, a division is usually reinforced from corps and army resources with respect to artillery and specialized troops. A few very large and relatively immobile systems such as large ballistic missiles are employed at only corps and higher levels. In the Canadian Army at the present time the basic formation of all arms is the brigade group. The same is true of the British Army and of certain other comparatively small armies.

35. Divisions are characterized as infantry, mechanized or armoured. Infantry divisions tend to contain a relatively small number of tanks and are often not fully motorized. Mechanized divisions tend to contain a higher proportion of tanks, artillery is usually self-propelled and the infantry is mounted on wheeled or tracked vehicles. Armoured divisions are “heavy” in tanks; the infantry is usually mounted on tracked carriers and artillery is almost always self-propelled.

36. Some divisions are characterized as air-borne or air-transportable. An air-borne division is, in essence, an infantry division which possesses equipment suitable for air delivery. When employed in an airborne role, such a division has comparatively few vehicles and no medium tanks. It is substantially weaker than a normal infantry division in heavy support weapons. Consequently it has only a limited sustained fighting capability against more normally equipped forces. An air-transportable division is a normal infantry division stripped of certain heavy equipment and a portion of its administrative transport in order to facilitate movement by large transport aircraft. The most important deletion is medium tanks which cannot be carried by existing transport aircraft.

37. Divisions vary somewhat in size and composition. Western divisions tend to contain around 15,000 men. Soviet divisions are somewhat smaller. However, divisions of all modern armies contain much the same general weapon types, and are surprisingly similar in basic organization. The major weapons groups are:

Small arms	—	rifles, pistols, machine guns
Tanks	—	light, medium and heavy
Anti-tank weapons	—	grenades, recoilless weapons, anti-tank guided missiles
H.E. support weapons—		artillery, mortars, recoilless rifles, rockets
A.A. weapons	—	guns, missile systems
Miscellaneous weapons—		flame throwers, grenades

38. A recent addition to these weapons groups is that of divisional nuclear support weapons. In the U.S. forces these include nuclear shells for the 8-inch howitzer, and the 762 mm nuclear rocket (or surface-to-surface missile). A small ballistic missile suitable for this role is under development. Smaller and lighter nuclear weapon launchers such as the "Davy Crockett" weapon exist but are not on general issue even to U.S. forces.

Small Arms

39. There have been three main trends in the development of small arms. The first is towards standardization of ammunition, not only between weapons but between countries. This eases supply problems both within a nation's own forces and between the forces of different nations operating as part of an allied group. It also tends to make future changes more difficult. Another trend is towards increased rate of fire. Nearly all modern armies are now equipped with some form of fully automatic or semi-automatic rifle. The third trend is towards reduced calibre. This has resulted in some reduction in nominal range but has made possible reductions in the weight of weapons and ammunition. There are under investigation several novel weapons which may, during the next decade, provide the individual soldier or the rifle section with a much improved capability for "area" fire at close range.

Tanks

40. Since the Second World War there has been a substantial improvement in the capability of anti-tank weapons. Nevertheless, it is generally agreed that the medium tank remains, in most theatres of war and in most operational circumstances, a crucially important weapons system. Owing to its combination of battlefield mobility, firepower, and protection, the tank is well suited to a wide range of warfare. Even in theatres of war which are not intrinsically suited to the employment of armoured formations, tanks are likely to be employed in significant numbers.

41. The general trend in tank design since the Second World War has been towards increased weight of armour and increased power and calibre of armament. The British CENTURION which is employed by the Canadian Army is generally typical of this trend. The main battle tank of most modern armies tends to weigh between 40-50 tons. This compares with 25-35 tons at the end of the Second World War. The increasing weight of medium armour carries with it severe problems in the crossing of obstacles. This is offset in part—but only in part—by improvements in military bridging equipments and methods.

42. There are, however, certain contrary tendencies. The very heavy tank, such as the British CONQUEROR, is tending to disappear. Light tanks of an essentially conventional design, i.e. with full rotating turrets and gun armament, have been produced by a number of countries including the United States. These vehicles have not, however, been markedly successful. The reductions in armament and armour involve a reduction in 'fighting' capability which is not off-set by the consequent gain in mobility. It seems to be generally accepted that light tanks of this type are generally unsuitable except in theatres of operations where they are not likely to encounter enemy medium armour.

43. There are indications that the trend towards greater weight in medium armour is in the process of being reversed. The next generation of main battle tanks seems likely to weigh between 35-40 tons. These reductions in weight have been made possible by improved designs, improvements in metallurgy, more compact components and improvements in fire control equipment.

44. There are a number of tank-like vehicles in the weight range 10-25 tons. Such vehicles have been produced by France, Sweden and the United States. These vehicles tend to involve unconventional design (the absence of a rotating turret) and, in some cases unconventional armament. One example is the American ONTOS which mounts a number of recoilless rifles. It has been claimed for most of these vehicles that they are a full substitute for the main battle tank. The weight of professional judgment, based on trials, exercises and analytical studies, is that whatever may be the case in the future, vehicles of this nature available today lack the versatility and all-round performance of the medium tank of essentially conventional design. In general, such vehicles must be regarded as special-purpose for use in reconnaissance, airborne operations or amphibious operations, or in theatres in which enemy medium tanks are not likely to be encountered in significant numbers.

45. Looking towards the more distant future, a number of unconventional vehicles are under investigation which may eventually displace the medium tank as the heavy cavalry of modern armies. These include such radical alternatives as the large scale use of light aircraft or ground effect vehicles. Consequently the future of the medium tank continues to involve very lively controversy—which has been true of the mounted arm of modern armies since the beginning of the present century.

Anti-Tank Weapons

46. For the most part, the development of so-called conventional weapons since the Second World War has been evolutionary rather than revolutionary. Anti-tank armament is a conspicuous exception. During the Second World War the principal specialized anti-tank weapon was the towed high velocity gun. At the present time specialized anti-tank armament consists mainly of rockets, recoilless weapons and anti-tank guided missiles. The high velocity gun, usually on a light, self-propelled mounting, is still found in some modern armies, but the towed high velocity anti-tank weapon is tending to disappear.

47. Most modern anti-tank weapons employ the principle of the shaped charge which, by focussing the force of an explosion into a high velocity jet, can achieve very great penetration of armour using only a small weight of high explosive. The penetration achieved by a shaped charge weapon does not depend on impact velocity, consequently it has been possible to develop small anti-tank weapons which are highly effective at short range. An example of such a weapon is the Canadian 3.2 inch rocket launcher (HELLER) used as the platoon anti-tank weapon. Both launcher and ammunition can easily be man carried and the weapon is effective at ranges up to a few hundred yards or more. At battalion level, the high velocity gun has been replaced by the recoilless rifle which is very much lighter and handier.

48. A novel type of anti-tank weapon which has been developed since the Second World War is the wire-guided anti-tank missile. The weapon is guided (in effect, flown) to the target by the operator using an optical aiming device. This weapon can be mounted on wheeled or tracked vehicles and even on light aircraft. Radio-controlled anti-tank missiles have been developed but tend to be more complex, more expensive, and less operationally satisfactory than the wire-guided types

49. There is no doubt that these new weapons represent a material improvement in anti-tank defence and especially under conditions of open warfare where mobility and ease of handling are important. However, it is quite wrong to believe that they have made the tank obsolete or that they are likely to do so.

High Explosive Support Weapons

50. In the past, field and medium artillery have been the principal means of providing H.E. support. Effective concentrations of artillery fire have been a key factor in attack and scarcely less important in defence. Nuclear weapons, if employed, are a partial substitute for conventional artillery concentrations but are not likely to be available in such numbers as to represent a complete substitute. If tactical nuclear weapons are available to the enemy, it would be necessary in future to avoid large gun concentrations such as were used in the Second World War since these would represent extremely lucrative targets for tactical nuclear weapons and ones which could very easily be located.

51. Since the Second World War, there have been improvements in the accuracy, effectiveness and range of artillery. There is a trend towards a greater employment of self-propelled artillery which, during the Second World War, was confined mainly to armoured divisions. The self-propelled gun has the advantages of greater mobility and better protection to the gun crews under conditions of open warfare. There is also a tendency towards larger calibres. In this respect a key consideration is greater range thus permitting flexible concentrations of fire from dispersed batteries.

52. At the lower end of the scale there have been considerable improvements in the range and accuracy of mortars. For fire at short range, mortars have the advantage of high lethality in relation to the total number of men required to man them. It is possible that in the future the combination of medium guns and mortars will tend to replace the standard field gun of the First and Second World Wars.

Anti-Aircraft Weapons

53. Since the Second World War there have been marked improvements in anti-aircraft weapons. An important factor has been radar. No less important is the development of surface-to-air guided missiles which have tended to replace medium and heavy anti-aircraft guns. The first anti-aircraft missiles were large and cumbersome and were unsuitable for deployment with the field army. Smaller solid fuelled missiles have made possible mobile systems suitable for use in the battle area. An example of a modern field AA system is the HAWK. HAWK involves a single stage solid propellant missile, it possesses semi-active radar homing and is fired from a mobile launcher. The system employs continuous wave doppler radar which permits coverage virtually down to ground level. Because the system is mobile it can be deployed close to front line troops and can protect them against all but very low flying aircraft. Protection of forward troops against very low flying aircraft can be provided in some degree by the REDEYE missile, which is a small portable weapon equipped with infrared homing, shoulder fired from a disposable container. A more advanced mobile AA missile system still in process of development is the MAULER.

54. Existing weapons are sufficiently effective to have forced tactical air forces into flying at very low altitude in order to penetrate such defences. Should present development objectives for future systems be achieved there will be a very real doubt as to the ability of tactical aircraft to operate in the vicinity of such defences. A partial answer may be found, however, in a combination of countermeasures and countertactics.

Miscellaneous Equipment

55. Since the Second World War many items of equipment have been introduced which would not usually be regarded as weapons but which have

had an important effect upon the organization, capabilities and tactics of land forces. One example is the armoured personnel carrier. There is a trend in nearly all modern armies towards the complete mechanization of the infantry for operations in theatres where such equipment can be employed to advantage. Another example is the introduction of the helicopter and a wider use of light aircraft within army formations. Other examples include the development of improved communications equipment, navigational aids and data processing equipment—all of which reflect contemporary developments in electronics.

56. A development which calls for specific comment is the introduction of devices for what is known as battlefield surveillance. These include a large number of devices employing radar, infrared, television and photography which have as their object the more rapid acquisition and processing of tactical intelligence. In total these devices have extended the range and speed of intelligence acquisition especially at night and under conditions of impaired visibility. They offer some promise of overcoming the enormous discrepancy between the firepower of modern armies and the ability to employ this firepower with maximum effectiveness.

III—THEATRE AIR OPERATIONS

57. Traditionally the functions of air forces in a theatre of war have been the following:

- (i) Maintenance of air superiority. This includes the ability to attack and destroy enemy aircraft in the air and on the ground, or to render them ineffective by destroying their support and control facilities. It is commonly held that the attainment of a substantial measure of air superiority is a necessary prerequisite for the satisfactory performance of other air roles;
- (ii) Interdiction. This involves attacks on enemy communications, support units and supply facilities to distances extending far behind his forward troops. The object of interdiction is to isolate the tactical battlefield, to deprive the enemy of supplies and reinforcements, and to destroy his mobility;
- (iii) Close air support of ground forces. This involves direct attack upon the enemy's forward troops in order to cause casualties and to reduce their fighting efficiency;
- (iv) Reconnaissance. This involves the provision of information regarding enemy strength, movements and positions;
- (v) Miscellaneous support activities. These include local supply, casualty evacuation, communication flying, provision of observation platforms, and other miscellaneous transport activities.

58. Contemporary developments have called for not only a re-evaluation of the means of achieving these objectives but, to some extent, a reconsideration of the feasibility and appropriateness of the objectives themselves. The main factors forcing this re-evaluation are the following:

- (i) The threat of the use of nuclear weapons, especially against airfields, which are very obvious targets;
- (ii) The high effectiveness of surface to air missiles against aircraft flying at high and medium levels;
- (iii) An increasing need for rapid and flexible fire support especially under conditions of mobile warfare.

Air Superiority

59. Until quite recently, air superiority was believed to call mainly for high performance interceptor aircraft, particularly all weather aircraft capable of operating by day and night. Modern aircraft of this type tend to be comparatively large, technically complex and expensive. Such aircraft require rapid climb and an intricate air-to-air weapons system. They demand elaborate technical support and a sophisticated ground environment. Where there is an immediate confrontation between opposing forces, as in Central Europe, there is some doubt whether even very high performance interceptors could provide any effective defence of the forward battle area and especially so if enemy attacks were carried out at low altitude. There is therefore a trend towards reliance on surface-to-air missiles, which have considerably shorter reaction time for protection of targets in the forward area. However interceptors still have a role in the defence of rear areas where speed of response is less critical and the intrinsic flexibility of the interceptor can be more effectively exploited.

60. Another factor is that large airfields are easily located and are very vulnerable both to nuclear and conventional attack. Protection for a limited number of aircraft can be provided by the use of blastproof shelters and by placing a portion of the force on airborne alert. These measures are, however, relatively expensive and have operational disadvantages. This problem has led to the present interest in short and vertical take-off and landing aircraft (STOL and VTOL, or jointly V/STOL). The STOL aircraft can operate from a make-shift runway a few hundred feet in length, VTOL aircraft can operate from a small clearing. Aircraft of both types can be dispersed singly at improvised strips or launch areas well away from main airfields and other possible targets, thus allowing a high probability of survival.

61. It may be that in future war, air superiority, in the sense of the ability of one side to operate aircraft at any level over the land battle area virtually unhindered will be unattainable. Nevertheless, the advantages of even a limited measure of air superiority are considerable so that both sides will probably strive to achieve it. Air superiority in the sense of being able to carry out the necessary functions of theatre air and to prevent or hinder the enemy from comparable activities, may require, on the one hand, aircraft capable of operating at low or very low altitudes, and, on the other, aircraft capable of operating from improvised landing strips or, as in the case of VTOL, without prepared landing fields. It must be said, however, that it is not yet clear that the advantages of VTOL over STOL will warrant the increased costs and technical complexity.

Interdiction

62. Interdiction may involve attack on predetermined enemy targets deep in enemy territory, such as airfields, missile sites, communication centres, and supply centres, or attack on targets of opportunity. To survive on a deep penetration mission against modern air defences it is almost essential for the aircraft to fly at low level. This is difficult, particularly at supersonic speeds. The aircraft must be specially stressed to withstand the buffeting that occurs in low altitude flight. This type of flying also requires special navigation equipment and auto-pilot gear to permit operations close to the surface of the earth. Difficulties of target recognition and the aero-dynamics of externally-mounted bombs necessitate subsonic flying during such an attack.

63. There appears to be some tendency for aircraft designed for interdiction to fall into a number of categories:

- (a) For very deep penetration against highly effective defences there is probably no substitute for very high performance aircraft. It is,

however, open to doubt that such operations would be profitable unless nuclear weapons were employed.

- (b) For more shallow penetration less complex and expensive aircraft can be employed.
- (c) For missions which do not involve penetration of highly developed air defences still less complex aircraft can be employed. A special purpose aircraft of this type is the American counter-insurgency aircraft which is designed to carry out a wide variety of missions in theatres in which there is no high-performance ground-based anti-aircraft defence.

Close Support Aircraft

64. The function of close support aircraft is to bring fire power to bear on opposing troops for destruction or neutralization. In this role aircraft can be either a supplement or an alternative to heavy ground support weapons. Close air support is particularly valuable in difficult country where movement of ground support weapons is restricted. Close air support targets are likely to be within a few thousand yards of our own forces. Consequently aircraft attacking such targets will not in general be required to penetrate deeply into the enemy's zone of operations.

65. By operating at very low altitude such aircraft can hope to avoid the enemy's main air defences. Therefore, an aircraft designed for close support can be relatively light and manoeuvrable with a proportionately heavy weapon load. High speed is not a prime consideration, but ability to use improvised air-strips is most desirable.

Reconnaissance

66. Air reconnaissance in the face of modern air defences presents a kind of dilemma. Low flying aircraft are restricted in their field of view so it is necessary to carry out at least some reconnaissance activities at high altitude. However an aircraft at high altitude will be easily picked up by radar thus rendering the aircraft vulnerable to destruction by modern air defences. Extreme height is for the present a possible solution although this requires very sophisticated photographic equipment in the aircraft. The American U2 is an example of an aircraft designed according to this concept. Tactical reconnaissance is carried out by strike aircraft as an alternative mission. For short range reconnaissance it may be possible to use small drones which have the advantages that they are relatively cheap and do not risk the loss of a pilot.

Miscellaneous Support

67. Military operations carried out on a nuclear battlefield or under a severe nuclear threat are likely to be featured by wide dispersal, high mobility and considerable interpenetration of forces. Tactical air supply has very great attractions owing to its speed, flexibility and the freedom from dependence upon uninterrupted road communications. Increasing use is being made of helicopters in this role. In the future, STOL or VTOL transports may tend to replace the cargo helicopter.

Air-to-Surface Weapons

68. The conventional weapons for close support and interdiction include machine guns, H.E. bombs, napalm (jellied gasoline) bombs, short range air-to-surface missiles with warheads up to 1,000 lbs. which can be guided to the

target from several miles away and free flight rockets. Generally speaking, these weapons are improvements on types used in the Second World War.

Future Trends

69. It seems probable that a considerable variety of aircraft will be required for theatre operations ranging from very high performance interceptor, strike, and reconnaissance aircraft to relatively low performance close support and transport aircraft, capable of operating from improvised airstrips. This seems to be an important point. Modern war is likely to call for a considerable variety of aircraft types reflecting to some extent the variety of circumstances under which modern military forces may be required to operate.

IV—NAVAL AND MARITIME FORCES

70. Naval operations and forces can be divided into the following categories:

- (a) Attack carrier task forces. Attack carriers are the capital ships of modern surface navies. The attack carrier is in essence a floating airfield;
- (b) Missile-launching ships and submarines. These are an important component of strategic deterrent forces;
- (c) Amphibious forces. These provide the floating base for an over-the-beach or helicopter-transported landing operation;
- (d) Attack submarines. The object of attack submarine operations is to destroy enemy naval or merchant vessels and to deny the use of the seas to the opponent;
- (e) Anti-submarine operations. The object of ASW operations is to destroy or to neutralize the threat presented by enemy attack submarines, and the forces include aircraft (both fixed wing and helicopters, carrier or land based), surface ships, and submarines;
- (f) Operations against surface shipping by surface or air forces;
- (g) Mining operations and mine countermeasures, including activities by divers.

71. A comprehensive review of modern naval weapons would require that all of the above should receive consideration. It is, however, almost impossible to do this in a short paper since all involve considerable technical complexity. For the purposes of the present paper it is proposed to limit consideration to ASW since this is the area which is of principal concern to Canada.

72. In order to destroy an enemy submarine certain functions must be carried out:

- (a) Detection;
- (b) Identification;
- (c) Localization (i.e. establishment of position within the effective radius of the ASW weapon);
- (d) Warhead delivery;
- (e) Destruction.

Generally speaking, the most difficult part of the problem relates to detection, identification and localization.

Anti-Submarine Warfare

73. Anti-submarine warfare systems continue to depend almost entirely on sound for the detection and location of submerged submarines. Other means of long range detection have been investigated, but, up to the present, no true alternative to sonar has been found. Certain short-ranged methods such as magnetic anomaly detection (MAD) have proved to be useful aids to accurate location but are essentially supplements to sonar rather than alternatives. Sonar systems are of two types: passive sonar which relies upon receiving sound energy emitted by the target, and active sonar which employs its own sound source and detects the target by means of the echo returned from it. Vessels of a particular type emit characteristic sound patterns or signatures. Consequently, passive sonar has the important advantage of facilitating identification of the target. Active sonar has the advantage of being able to detect silent targets and can determine their position more accurately. The performance of sonar is extremely variable, largely owing to the variability of the sea as a medium for the propagation of sound. The path of sound waves is affected by temperature, salinity, depth, bottom reflectivity, depth of receiver and depth of target. As a result the effective range of a sonar set may vary from zero to over 100 miles against similar targets on different occasions. The development (largely in Canada) of the variable depth sonar, which can be towed at the optimum depth has given rise to a considerable improvement. Nevertheless, the variable range and uncertain reliability of sonar remains one of the most fundamental problems of ASW.

74. The introduction of nuclear powered submarines has created additional problems for ASW forces. The nuclear submarine can travel faster, and also remain submerged at great depth almost indefinitely. The nuclear-powered submarine can travel submerged at speeds in excess of those of many existing surface escorts. The nuclear-powered submarine is also superior from the point of view of underwater manoeuvre. Nevertheless, the nuclear-powered submarine represents, and will continue to represent, an extremely formidable problem from the point of view of ASW defence. One should note, however, that the great majority of the present fleet of Soviet submarines are conventionally powered. This is likely to remain the case for some years to come.

75. Anti-submarine defence involves several types of operations. For surveillance and attack operations extending over large areas, the long range maritime aircraft is an important weapons system. Such aircraft can follow up distant contacts more rapidly than surface craft, they can investigate widely separated contacts on the same flight, they can search for contacts which have been temporarily lost or for suspected contacts in areas where no other means of surveillance exist. This is done by dropping and monitoring patterns of sonobuoys. Having found or renewed a contact the aircraft can locate the submarine by MAD or other means, and attack it by torpedo or depth charge. Important developments in these airborne sub-systems have occurred and others are in prospect.

76. In the role of convoy protection the principal weapons system is the escort vessel. Shore-based aircraft have an important role in convoy defence but are subject to certain limitations. The destroyer escort is a ship of the destroyer type which has been specially adapted to the ASW role. With the advent of the nuclear submarine an improvement in the detection system and weapons has become necessary. An important requirement is to increase the range possible with existing torpedoes. One solution to this problem is the anti-submarine rocket (ASROC) developed in the USA. Another solution developed by Canada is to install a helicopter platform on the destroyer escort.

The helicopter can carry a dunking sonar and a torpedo, thus providing an extension of both detection capability and weapon range.

77. The hydrofoil may ultimately provide a partial alternative to the helicopter; it has the ability to execute a high speed dash at speeds substantially in excess of that of a destroyer escort although not as fast as a helicopter. However, unlike the helicopter, the hydrofoil can remain on station for relatively long periods. Hydrofoils may involve considerable operating and maintenance problems. The severity of these problems will be clear only after some considerable experience has been gained in open-ocean operations.

78. An important weapon system for convoy escort is the ASW carrier. This is most particularly true in the case of operations carried out beyond the economical range of shore-based aircraft. The aircraft carrier can operate fixed wing aircraft which have a range and endurance much superior to helicopters. It can also, of course, operate a substantial number of aircraft.

V—BIOLOGICAL AND CHEMICAL WEAPONS

79. Although it is customary to link biological and chemical weapons for the purposes of discussion, these have from a technical military point of view little in common. There are, however, special inhibitions of a legal and moral nature attaching to the use of both types of weapons and it is the declared policy of all major governments to refrain from the use of such weapons other than in direct retaliation.

80. Chemical weapons cover a wide spectrum ranging from tear gas and other incapacitating agents to the modern nerve gases which are extremely lethal. The latter, if used against troops not equipped and trained in CW defence, would undoubtedly be devastating. Casualties would be high and the effect upon morale might be disastrous.

81. However, against troops well equipped for defence and well trained in the use of this equipment, it is unlikely that even the most lethal chemical agents would result in significantly more casualties for a given weight of munitions than would be caused by the same weight of high explosive munitions. Under certain conditions it is probable that CW would be significantly less effective than the same weight of HE. It should be said, however, that the appropriate defensive precautions would involve a considerable burden upon the troops, and this might be in itself a sufficient reason to employ CW.

82. Biological weapons are an entirely different matter. BW is, potentially, a weapon of mass destruction even more destructive than thermonuclear weapons on a per-pound or a per-dollar basis. However, for the present, biological weapons can scarcely be said to exist at all as an effective weapons system since there are unsolved problems relating to the efficient propagation of BW agents. Even if these problems were solved, biological weapons would, in comparison with nuclear weapons, suffer from two very important disadvantages; they are almost untestable and, quite possibly, almost uncontrollable. It is therefore possible that biological weapons will remain in the future, as they have been throughout the present century, a potential weapon of enormous destructive power but essentially unemployable for any rational political or military purpose. There is, of course, no assurance that this will be so, but it is worth noting that biological weapons have constituted a potential threat for almost a hundred years.

SUMMARY

83. The present paper represents a far from adequate survey of modern weapons and armaments. However, a comprehensive treatment would require a substantial treatise if not a small library. Perhaps the important point is that modern technology, which is continually being expanded by reason of the results of research and development, has enormously increased the spectrum of choice. At the same time, political and military circumstances have tended to produce an equivalent increase in the spectrum of possible military operations.

84. These facts have in themselves led to important consequences. Technical and engineering expertise have become of steadily increasing importance to modern military forces. Research and development is a constituent of national power no less important than population or productive potential. The role of the engineer and scientist in military planning has increased. As mastery of technology has become the key to military efficiency the size of national military headquarters and the proportion of effort devoted to technical establishments have increased. These developments have created major problems and especially so in the case of relatively small nations.

CONVENTIONAL AND NUCLEAR ARMAMENTS

By: JOHN GELLNER

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- II. CANADIAN NUCLEAR WEAPONS FOR NORTH AMERICAN DEFENCE
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SECTION I.

FUNDAMENTAL DIFFERENCES BETWEEN NUCLEAR AND CONVENTIONAL ARMS

Any discussion of the respective uses of nuclear and conventional weapons must start with the categorical statement that there just is no comparison between the two. Statements that have been made in the past to the effect that nuclear weapons are like any others, only more effective—in Canada, this was put with somewhat frightening bonhomie that nuclear arms are simply “the best weapons for our boys”—are totally misleading.

Even the effect of comparatively small, so-called tactical or battlefield, nuclear weapons is quite different from that of conventional; the latter have controllable results and no after-effects, the former are not fully controllable and they do have after-effects. The reasons for this can, without going into technical detail, be stated as follows:

As far as we know, the fission material in small nuclear weapons is still plutonium (Pu-239), of which there must be somewhat more than ten pounds to start an explosive chain reaction. This is called the “critical mass”. If all that plutonium underwent fission, there would be a blast of the equivalent power of something like 90 KT (90,000 t. of T.N.T.). In actual fact, what we may call the efficiency of a plutonium weapon is only about 20 per cent: only about two pounds of the weapon material is split and the resulting explosion amounts to 18 KT, or so. ⁽¹⁾ The unused, as it were, portion of the plutonium, vaporized or scattered by the explosion, adds to the noxious effects of radiation (plutonium is highly toxic); it causes long-lasting contamination (the half-life of plutonium is 24,000 years).

A low-yield explosion in a battlefield nuclear weapon is achieved through a greatly accelerated, deliberately inefficient fission process. The lowest-yield warhead about which some facts and figures have been published, is that of the “Davy Crockett” atomic mortar. In it, a blast of approximately 0.1 KT

¹ Data from, “Policy Considerations of a Nuclear Test Ban”, by D. G. Brennan and M. H. Halperin, in, “Arms Control, Disarmament and National Security” (George Brazillier, New York, 1961).

(100 t. of T.N.T.) is produced by the fission of only about one fifth of one ounce of plutonium.² This is an efficiency of not much more than one tenth of one per cent as against the theoretically possible yield from the same critical mass. Contamination from unused plutonium is thus relatively the greater, the lower the explosive power of the atomic weapon. In other words, tactical nuclear weapons are the "dirtiest".

This is a widely known fact. Some experts, incidentally, believe that the dreaded "neutron bomb", about which so much has been written, will actually consist of a mass of fissionable material detonated so inefficiently that it will produce only radio-toxic effects (which kill people) and practically no blast and heat (which destroy structures).

In the case of battlefield atomic weapons, the noxious effects that stem from the artificially inefficient explosion of the fissionable material are heightened by the fact that these weapons, if they are to achieve the desired results, must be detonated on the ground or close above the ground. They will thus produce patches of scorched—the better expression would perhaps be, blighted—earth which would remain scorched for many years, perhaps for a generation.

The foregoing (necessarily incomplete) discussion of the effects of tactical nuclear weapons may serve to dispel the notion that there exist comparatively benevolent nuclear weapons, the use of which would be quite in order. There are no such weapons. Tactical nuclear arms have been developed, not for humanitarian reasons, but in order to make possible close-in fighting. The "Genie" air-to-air missile, for instance, has a low-yield warhead (reportedly of 1.5 KT) so that the interceptor which carries it may come comparatively close to its target without being blown up itself. The already mentioned "Davy Crockett" fires a 0.1 KT mortar bomb so that the own infantry may exploit the nuclear blow at once and without having to make a great detour.

In sum, to paraphrase what Gertrude Stein once said about a rose, a "nuclear weapon is a nuclear weapon is a nuclear weapon", be it big or small, strategic or tactical. The political consequences of this fact are obvious. One must always keep in mind that conventional war is one thing, and war that would, or even merely could, be fought with nuclear weapons quite another.

SECTION II

CANADIAN NUCLEAR WEAPONS FOR NORTH AMERICAN DEFENCE

Canada has nuclear weapons carriers, and access to the nuclear weapons belonging to them, for two purposes: the aerial defence of North America, and the defence of the Central European sector of the NATO area.

As far as North America is concerned, it can, I believe, be accepted without much explanation that this continent need be defended only against all-out nuclear attack. The probability that this might happen is fortunately very slight, because the nuclear deterrent to nuclear war works at present and is likely to work in the foreseeable future. The deterrent, in turn, lies in the "second-strike capability" of the U.S. retaliatory forces, that is, in their capability to counter-attack with annihilating effect even after they have been struck by an enemy surprise attack.

Before the advent of ballistic missiles, the primary task of active air defence (defensive aircraft and missiles) was to protect the retaliatory forces and thereby validate the deterrent. This is no longer so. To take the retaliatory

² Data from, "Kleine und Kleinste Nukleare Sprengkoerper", by H. Flueckinger, in "Allgemeine Schweizer Militaerzeitschrift", May, 1962, and, "Jane's All the World's Aircraft 1963-64".

force by surprise and catch as much as possible of it on the ground, the enemy would have to lead with his missiles. His bombers could follow only after the difference of time between the moment when his ballistic missiles, and the moment when his bombers, could be detected by the various North American early-warning chains. This means that the bombers would come into range of our "Voodoo" interceptors and "Bomarc" surface-to-air missiles several hours after the first missile strike, that is, long after the portion of the retaliatory force that had remained unscathed had left for the counter-attack.

At present, then, active air defence, because it is ineffective against ballistic missiles, does not add to the deterrent by making it less vulnerable and does not protect it against actual attack. On the other hand, the enemy bombers that might come a few hours after the missile strike, would not be directed against the retaliatory force, anyway (the latter would not be there any more), but against population targets. Active air defence could in that case give some measure of protection to our cities by destroying a certain number of the attackers. By stretching the point a bit, it might even be said that active air defence even now deters to some extent, because it disabuses the potential enemy of the notion that after the initial missile strike his bombers could roam freely (the term generally used is, "have a free ride") in our air space.

Admittedly, in its present form, active North American air defence does not have too valid a *raison d'être*. In this paper, however, we are concerned with what is rather than with what ought or ought not to be. We can accept, then, that *under certain conditions*, which are not given now and are not likely to occur in the future, but which nevertheless could obtain at some time, *Active air defence could help to deter, and might combat after a fashion, an enemy bomber attack against North America. It could never deter or fight unless it had the use of nuclear weapons.*

The reasons for this are pretty obvious. In all-out nuclear war, every enemy bomber is a potential city-killer. Defensive means are limited, to say the least. It is essential, then, that every shot aimed at a bomber be a hit, and every hit a kill. Conventional anti-aircraft weapons are very far from being as efficient as that. In the last war, for instance, the Germans on an average destroyed one allied bomber for every 3,343 heavy A.A. shells expended.³ That ratio was improved after the introduction of proximity fuzes, but by no means radically. Armed with conventional weapons, the kill probability that could be achieved by the 56 Canadian "Bomarc" missiles would be zero, and by the 50, odd, "Voodoos" not much better: we have no other A.A. weapons that could be used against high-flying jet bombers.

With nuclear weapons, the kill probability is very much greater. The lethal radius of the "Genie" air-to-air missile, that would be carried in the "Voodoo", is at least 1,000 feet,⁴ while "Bomarc" reportedly would destroy anything within a cubic mile of air. Accuracy, which under operational conditions would be much affected by the enemy's electronic counter-measures, is thus infinitely less important in nuclear than it is in conventional A.A. weapons. The destruction of a target that came into the lethal range of a nuclear weapon would be instantaneous and complete. The "cooking" of the nuclear weapon carried in the target might be an additional benefit, but whether or not it would actually occur is open to question.

In sum, then, the chances of active North American air defence contributing much to the protection of population centers are not very great, in any case. They would be nil without defensive nuclear weapons.

³ Data from, "The Bombing of Germany", by Hans Rumpf (Frederick Muller, London, 1961).

⁴ Data from, "Jane's All the World's Aircraft 1963-64".

SECTION III.

CANADIAN NUCLEAR WEAPONS FOR THE DEFENCE
OF CENTRAL EUROPE

In Central Europe, the Canadian nuclear weapons carriers, CF-104 tactical bombers and "Honest John" surface-to-surface missiles, have a certain deterrent effect but not operational usefulness. They add perhaps in some degree to the general deterrence of war in the area; they deter the Soviets from using their tactical nuclear weapons; and, in the unlikely case of a conventional war breaking out in Central Europe, they would force the enemy to fight in dispersal for fear of being caught by a surprise nuclear blow, and thus to forsake whatever advantage he could derive from concentrating for an attack in superior numbers. It may be added that, for the very same reasons, the Soviets also have some tactical nuclear weapons (in the main, short-range ballistic missiles on mobile launchers) with their forces in East Germany. On the other hand, it must be realized that all-out nuclear war would almost certainly ensue if one side fired off a nuclear weapon in the course of fighting in Central Europe. In fact, it is more than likely that any war in that part of the world be an all-out nuclear war. In it, CF-104's would hardly have a place, and "Honest Johns" certainly none.

NATO has put a tremendous effort—a very much greater one than has the Soviet Union—into equipping its forces with tactical nuclear weapons. In choosing this course, it has acted on the assumption, plainly erroneous, that, if need be, a limited nuclear war could be fought. The theory was that inferiority in conventional forces could be accepted, because the odds would be equalized by the judicious use, whenever and wherever necessary, of relatively low-yield nuclear arms. How this was to be done was worked out on paper and demonstrated in field exercises. It is rather surprising that nobody in the top NATO echelons seems to have been struck by the absurdity of that concept, not even after an exercise like "Winter Shield II." (February 2 to 8, 1961), in the course of which 74 simulated nuclear weapons were fired in a manoeuvre area of approximately 1,650 square miles in Eastern Bavaria⁵, or, on an average, one nuclear weapon on every 22 square miles. Defending a territory in this fashion is like saving a TV set by throwing it out of the third-storey window of a burning building.

Equally astonishing is that it took so long to realize that a limited nuclear war would be impossible, because the potential opponent never had the slightest intention to play the game. Soviet military and political spokesmen certainly have never made any bones about the fact that the Soviet Union absolutely refuses to accept any limitations once a nuclear war has broken out.⁶ It stands to reason, in any case, that the Soviet Union will not—and indeed can not—consent to such restrictions. As the weaker side in a nuclear conflict, weaker in the past, now, and in the foreseeable future, it could only be expected to strike with everything it had in the first minutes or hours of such a war.

Nor were warnings heeded that came from thoughtful men in the Western camp, B. L. Liddell Hart⁷ and Lord Tedder to name but two who should have carried most weight.

⁵ Data from, "Winter Shield II.", by H. Kissel, in "Allgemeine Schweizer Militaerzeitschrift", May 1961

⁶ For a clear summation, see, "Soviet Military Strategy", by Marshal V. D. Sokolovskij and ass. (Prentice-Hall, 1963). Compare also explanations given by Mr. Krushchov to Walter Lippmann, in *Schoi*, April 1961 (variously reported)

⁷ E.g. in his book, "Deterrent or Defence" (Praeger, 1960).

The period of pure blindness, during which the majority of NATO members, including Canada, acquired weapons systems for limited nuclear war, seems to be over now. The Americans, in any case, who were the ones who came up with the concept of limited nuclear war in the first place, have now virtually abandoned it. The present position is that most of the nuclear-armed allied tactical air forces are being clubbed together under SACEUR to provide, together with the British V-bombers and three U.S. Polaris submarines, a kind of NATO strategic deterrent (which was decided at the NATO conference in Ottawa, in May, 1963); the nuclear weapons of the ground forces are being kept where they are pending the evolution of a new concept of how to use them and for what. In this scheme of things, *the Canadian nuclear weapons carriers in NATO continue to fulfil their deterrent function, a function which, as things stand now, is of comparatively little consequence.*

SECTION IV.

STRATEGIC NUCLEAR WEAPONS

Little need to be said, here, about *the strategic nuclear weapons in the hands of the four nuclear powers. They serve solely the deterrence of nuclear war.* As far as their possessors are concerned, they inhibit any warlike action—a nuclear power has to be careful not to be drawn into a conflict in which it could be confronted by another nuclear power—but they do not otherwise deter conventional war.

The nuclear deterrent works if it is credible and stable. The first condition requires no explanation. The more spectacular name usually given to the state of stable deterrence, as it exists today, is “balance of terror”. Stability does not depend on the deterrent forces of the antagonists being more or less equal (they are not now, and never were, with the United States holding the advantage), but rather on both sides having a “second-strike capability” (See, pp 3/4). They have it if a sufficient portion of the retaliatory force can ride out a surprise attack. Such relative invulnerability is conferred by dispersal, mobility, hardening of bases, in the case of the Soviet Union also by secrecy.

The quantity of deterrence necessary for safety is also dependent on the importance of the possessor of nuclear weapons—a country like France, for instance, needs less retaliatory strength to deter nuclear attack upon it than does the United States.

The stability of the deterrent would be upset if one side grew too strong or the other too weak. This would happen if one side acquired a “first-strike capability” (i.e. the ability to destroy the retaliatory force of the other) or found reliable means of defence against nuclear attack. In that case, both the stronger and the weaker side would be tempted to strike, the former to exploit its possibly only transitory advantage, the latter to equalize the odds somewhat by getting in a surprise blow. *The danger that the “balance of terror” will be upset in the foreseeable future is, however, slight.*

Non-nuclear powers can contribute little, if anything, toward bolstering the credibility and stability of the nuclear deterrent. This applies also to Canada, which in the field of strategic deterrence can render to the United States only minor services.

SECTION V.

CONVENTIONAL WEAPONS

Conventional warfare of all kind has never stopped since the end of the Second World War. In fact, conflict of this nature seems to become more common than ever.

The two main characteristics of present-day conventional forces which distinguish them from those of the recent past are their greatly enhanced mobility and flexibility. Firepower per man is also continuously increasing as new weapons are introduced and, perhaps even more important, as lighter, smaller and handier weapons replace the heavier armaments of the past.

A very high degree of *mobility* is necessary nowadays because in modern conventional war there is no longer an opening stage during which the antagonists mobilize and deploy, and because movement is so rapid that advantages can be gained in the first hours of a conflict which a sluggish opponent may never be able to make good. The *Korean War* provides an object lesson on the role mobility plays in present-day warfare.

The North Korean army which drove across the 38th parallel on June 25, 1950, was an oldfashioned infantry force, supported by only 100 tanks. Yet even it would have finished the war victoriously in something like three or four weeks, had the United States not followed up its decision to intervene, taken on June 30, with a first movement of troops into Korea on the very next day. Even so, the North Koreans almost made it: at the beginning of August, all that was left of the Republic of Korea was the farthest north-east corner of the country defended by U.S.-South Korean formations precariously holding the "Pusan perimeter". But for the mobility of the American forces—and the obsolescence of the North Korean—there would not have been much of a war and certainly no Republic of Korea on our side.

Just as certainly, Canada would have had no opportunity to intervene in the Korean War. The decision to send Canadian ground troops was taken on August 7—just when the U.S. and ROK troops were making their crucial stand along the "Pusan perimeter"—, an advanced party was landed on November 7, and the first combat unit, an infantry battalion, on December 18. By then, the decisive stage of the war—that in which victory or defeat hang in the balance—was over. This kind of intervention would be, of course, quite useless against a first-class adversary.

Similarly, conventional force dispatched to preserve the peace in a troubled area, can accomplish their objective only if they can move in at once, before actual warfare has broken out, or at least before it has become so intense that it is impossible to squelch.

Mobility is particularly important in a theatre of operations in which the adversary has it in his power to use nuclear weapons. The threat which they pose, even if it lurks only in the background, makes it necessary to move in wide dispersal, to concentrate and then again thin-out rapidly, so as to offer targets for a surprise nuclear blow for as short a time as possible.

Mobility depends on a number of factors; trained and fully equipped troops must be readily available at all times; all their equipment must be suited to the means of transport available; there must be a wide variety of the latter, as the requirements for long-range transportation are quite different from those for movement in the rear areas of a theatre of operations and again from those in the battle zone; the forces must be organized so as to require the least of transport for a given amount of firepower.

Here are a few explanatory notes:

A good rule-of-thumb for the calculation of weights to be moved to an area of active operations is three tons per man initially, and one ton per man per month thereafter. These figures may seem to be high, but it must be realized that they include all vehicles, fuel, and ammunition. In fact, the three ton-one ton rule is, if anything, conservative. In Exercise "Big Lift", the 2nd U.S. Armoured Division with some supporting elements, 15,358 officers and men in all, was flown in 204 transport aircraft from the United States to

Germany. There the troops drew from depots 60,000 tons of equipment.⁸ This works out to four tons per man.

The total airlift capacity of the power most lavishly equipped in this respect, the United States, as of mid-1963, was 12,000 tons for 1,500 miles, or 8,500 tons for 4,000 miles.⁹ This would be barely sufficient to carry one fully equipped infantry regiment across the Atlantic in a single airlift.

Long-range movement to areas where there are no friendly depots and no pre-positioned equipment must as a rule still be carried out by sea. A fast, big liner will be very good for the job, if there are proper port facilities on the other side. Specialized vessels which can discharge passengers and cargo over an open beach are preferable—some are available in the NATO navies (the Royal Navy's new, fast logistic ship "Sir Lancelot" is an outstanding example), but by far not enough. Long-range transport aircraft will still carry personnel, or even complete advance units, like an armoured reconnaissance squadron. The same applies (but not to the same degree) to air units. They can carry themselves with all essential equipment more easily than army units can be carried, but in their case too heavy support equipment will as a rule have to go by sea. It goes without saying that all fuel—and modern conventional forces consume prodigious amounts of it—must be transported in tankers.

In the rear of the battle front, equipment must be moved on its own wheels and tracks or must be airlifted in fixed-wing or rotary-wing aircraft. The former must have the capability to operate from rough and small airfields; among the latter, crane helicopters, which can lift big loads suspended externally, are becoming more and more important. Smaller types of aircraft are needed on the battlefield. Helicopters are very useful, but also highly vulnerable. Vertical-take-off aircraft (VTOL) will probably eventually take ~~their~~ place; they are not yet available.

All equipment must be air-transportable. This means that it must be designed as to weight, distribution of weight, and bulk, to fit into available transport aircraft. The latter, in turn, must be designed for the handling of bulky and awkward equipment, and for easy and fast loading and unloading. Because the carrying capacity of aircraft is limited, operational units and headquarters must be streamlined, that is, administrative tails must be short, so that most of the weight can be allocated to the fighting components.

Because intervention in a conventional war must be instantaneous if it is to be effective, and because the number of fully trained troops which are readily available will always be limited, armed forces must be *highly flexible*, that is, they must be capable of operating in all conditions. At one and the same time, and with very much the same kind of equipment, British troops have recently held a sector in Central Europe opposite a first-class power possessing nuclear weapons; have dealt with hostile incursions in the desert of southern Arabia and the jungles of Borneo; policed Cyprus; put down revolts in East Africa. By comparison, the Canadian experience in the Korean War has shown how utterly impractical it is to try to raise a special force for a special military task.

To achieve the kind of mobility that modern conventional war requires, and to make possible fighting in small bodies and wide dispersal, *individual firepower* had to be greatly increased. The Canadian army is far from having all the modern armament it should have, but even in it firepower has doubled in the 20 years between 1944 and 1964. The weight of fire that can be put down by a Canadian army brigade in one minute has risen from 41,700 rounds from

⁸ Data from "Exercise Big Lift", in "Interavia", December 1963; and "The Navy at Ebb Tide", by Hanson Baldwin, in "Reporter", 30 January 1964.

⁹ Data from, "Strategic Mobility", by Neville Brown (Chatto & Windus, London, 1963)

small arms, 238 anti-tank rounds, and just under seven tons of high-explosive shells, to 79,200 rounds, 504 rounds, and 15.37 tons, respectively.¹⁰

Even more significant is the fact that weapons have generally become simpler, smaller, lighter—and as often as not cheaper—than they were in the Second World War.

For instance, the job which was done then by the 17-pound anti-tank gun, with its towing vehicle and gun crew, is done now with greater accuracy by a single infantryman carrying a wire-guided anti-tank missile. As far as anti-aircraft artillery is concerned, the standard gun of Canadian ground troops, the 40 mm Bofors, required a crew of six, and its chance of destroying an aircraft was less than one in a thousand (the Germans fired 4,940 rounds from light anti-aircraft guns to shoot down one bomber).¹¹ A gun of that kind could not even be trained on a modern aircraft flying at low level and at today's speeds. By comparison, the "Redeye" anti-aircraft missile, with infra-red guidance, is served by a two-man team, can be fired from the shoulder, and has an estimated kill probability against low-flying aircraft of one in five.

In aircraft, the increase in firepower is even more pronounced, both in weight of fire and in effectiveness. The latter has been enhanced mainly by the introduction of guided air-to-air and air-to-surface missiles.

The role of *navies* in present-day conventional warfare is a lesser one than it used to be in the past. The reason for this is that the big maritime powers are also nuclear powers which, as was pointed out earlier, are likely to do anything to avoid a direct confrontation with one another. Still, as was also said earlier, navies have an important logistic function. They must be protected while performing it against air, surface and under-water attack. Ships may be required to provide fire support. They may serve as bases of helicopters and temporary airfields. Because of the communication facilities available, headquarters may in certain circumstances be best located on ship-board.

In the not too distant future, air-cushion vehicles (hovercraft) and hydrofoils should have an important place in maritime and in combined sea-land operations, with the former probably proving more useful in practice than the latter. Especially inshore, and on bigger rivers and other inland waters, they could, with their high speed, good manoeuvrability, and relatively great carrying capacity, render excellent service. Hydrofoils are also being considered as submarine chasers.

In sum, then, *modern conventional warfare requires men and matériel of extraordinarily high quality*, because mass as a rule can no longer compensate for lacking individual performance. The trend toward bigger and bigger weapons has been reversed. *The emphasis is now on providing the smallest possible team with the greatest possible firepower and with the means of operating with the least possible support.*

SECTION VI

REQUIREMENTS OF A CONVENTIONALLY ARMED CANADIAN FORCE

Very briefly, it can be stated here that *Canada has the men but not the matériel for a modern conventional force that would be capable of intervening quickly in any kind of situation in any part of the world.* We got into this position, because for years we were preoccupied with the (fortunately most unlikely) big war, but neglected to equip ourselves for the likely kind of

¹⁰ Figures kindly supplied by Canadian Army Headquarters.

¹¹ Same reference as ⁹.

armed conflict. As a result, we have the foundation for a small-war force, but not the superstructure (in both cases, big/nuclear and small/conventional war, the terms imply deterrence as well as conduct).

The Canadian forces lack certain kinds of essential equipment completely, while they are deficient to a greater or lesser degree in respect to other items. We have no tactical aviation, at all, and no suitable sea transport. Both our naval vessels and our ground troops are virtually unprotected against air attack. We have only a very few really useful military transport aircraft (the bulk of our transport fleet, the CC-106s and CC-109s, are just passenger aircraft). Much of our matériel is not air-transportable. Our ground troops badly need modern armoured vehicles, from tanks to troop carriers (the latter are on order). There are various deficiencies in ancillary equipment.

Because of these deficiencies, every operation by Canadian forces above the level of a police action would now require a good deal of outside (allied) support. *To build up balanced conventional forces, that would be up to present-day requirements, is, however, not beyond our capabilities* (Sweden is the outstanding example of a middle power which has managed to do that).

~~UA~~ Canada. Parliament. House
~~600~~ of Commons. Special Committee
~~A35~~ on Defence
~~1964/65~~ Minutes of proceedings and
~~no. 26-~~ evidence
~~27~~

~~Physical &~~
~~Applied Sci.~~
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